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UNIVERSITY OF ALBERTA

THE STRESS PROCESS AND PSYCHOLOGICAL WELL-BEING: FIVE ALBERTA INDIAN COMMUNITIES

BY

Andrea Werner-Leonard

(C)

A thesis submitted to the Faculty of Graduate Studies and Research in partial fulfilment of the requirements for the degree of Master of Arts.

Department of Sociology

Edmonton, Alberta
Fall, 1991

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FACULTY OF GRADUATE STUDIES AND RESEARCH

The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research for acceptance, a thesis entitled THE STRESS PROCESS AND PSYCHOLOGICAL WELL-BEING: FIVE ALBERTA INDIAN COMMUNITIES submitted by Andrea Werner-Leonard in partial fulfilment of the requirements for the degree of Master of Arts.

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Date: Oct 1/91

DEDICATION

This thesis is dedicated to Jerry, Andrew, Georgia, and Mark for their infinite patience and understanding, to Elizabeth for her encouragement, and to the loving memory of Phil.

ABSTRACT

To date there have been no studies which have assessed the psychological well-being of Canada's native populations. Data obtained from health surveys conducted in five Alberta Native communities were analysed using multi-variate statistical techniques to examine the extent of depressive symptomatology and its causal determinants. Separate regression equations for each band, employing demographic, stressor, and resource variables, were performed to assess the generalizability of the Pearlin, et. al. (1981) model of the stress process. Results suggest that the Pearlin, et. al. (1981) model is appropriate for studying the stress process in Native communities. Results also provide evidence of extreme, clinical, depressive symptomatology in all communities. The significance of predictor variables varies for each community, testimony to the fact that Native communities vary from one another on a number of important dimensions. Results suggest that future research into the Native stress experience should employ more refined measures of life events, economic strain, role strain, self-esteem, and social support.

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TABLE OF CONTENTS

I. INTRODUCTION 1

II. BACKGROUND 4

III. THE SOCIOLOGICAL STUDY OF
THE STRESS PROCESS 9

A. Life Events as Stressors 12

B. Chronic Strains 12

C. Stress Mediators 14

1. Social Support 15

2. Psychological Resources.....17

D. Stress Outcomes 20

IV. PRESENT STUDY 20

A. Methods 25

1. Samples 25

a. Alexander 26

b. Alexis 27

c. Kehewin 28

d. Sarcee 30

e. Hobbema 31

2. Variables 35

a. Demographic 35

b. Economic Strain 37

c. Family Role Strain 38
d. Social Support 38
e. Self-Esteem 38
f. Mastery 39
g. Depression 39
B. The Level and Variability of Stressors ...41
1. Life Events 41
2. Economic Strain 42
3. Chronic Illnesses 43
4. Family Role Strain 44
C. Social and Psychological Resources 47
1. Social Support 48
2. Self-Esteem 48
3. Mastery 49
D. Stress Outcomes 52
1. Depression 52
V. RESULTS 54
A. Correlations 54
B. Multivariate Results 57
1. The Effects of Stressors on Depression 59
2. Stress Regression Controlling for Demographic and Resource Variables ...64
a. Demographic Variables 65

b. Stressors 66
(1) Life Events 66
(2) Economic Strain 67
(3) Family Role Strain 68
(4) Chronic Illnesses 68
c. Stress Mediators 69
(1) Social Support 69
(2) Self-Esteem 69
(3) Mastery 70
VI. DISCUSSION 71
VII. CONCLUSION 91
VIII. NOTES 94
IX. BIBLIOGRAPHY 104
X. APPENDICES 112

LIST OF TABLES

TABLE I Means and Standard Deviations of Demographic Variables by Reserve ...95

TABLE II Frequencies, Means, and Standard Deviations of Stressor Variables by Reserve 96

TABLE III Frequencies, Means, and Standard Deviations of Social and Psychological Resources by Reserve 97

TABLE IV Frequencies, Means, and Standard Deviations of Depression by Reserve 98

TABLE V Correlations of Depression With Independent Variables by Reserve ...99

TABLE VI Regression of Depression on Stressors by Reserve 100

TABLE VII Regression of Depression on Stressors, Resources, Sex, Marital Status, and Education by Reserve ..101

TABLE VIII Reduced Form Equations by Reserve .102

LIST OF FIGURES

FIGURE I Indian Bands - Alberta Region.....103

I. INTRODUCTION

Native peoples suffer severe health problems largely as a result of their social conditions. The social conditions of reserve life lead to chronic problems that result in stress and impact on psychological well-being. The high rate of Native teenage suicide is a case in point. Yet, to date, there are no studies which have investigated the psychological well-being of our Native populations nor its causal determinants. Because Indian populations vary highly geographically, socially, economically, religiously, politically between bands as well as within bands, they are of particular interest to stress researchers. Highly variable populations offer the stress researcher a unique opportunity to observe effects usually not so apparent in general populations.

The purpose of this study is to examine the Native stress experience using Pearlin, et. al's (1981) stress model. Generally, the extreme circumstances and unique experience of Native life vis-a-vis the general Canadian population is worthy of investigation in its own right. Not only are Native Indians the most disadvantaged of Canada's populations, but also, their morbidity and mortality patterns and rates

suggest they are probably a people under high stress. The characteristics that Native peoples have in common, when compared to the dominant white society, however, belie the differences among them.

Indian communities do not all share the same cultural roots. Modern North American Indian groups have ancestral links to many different nations and language groups. Their cultures are diverse and reaction to their dependent status varies. Native situations and conditions differ in such terms as resources, geographical location, isolation, culture, law, religion, and history. By virtue, then, of Native peoples' position in relation to the dominant Euro-Canadian society, and by virtue of the variation both within and between communities, the study of the Native stress-distress relationship makes for an ideal test case.

There are no studies yet which have assessed the extent of psychological dysfunction or its determinants among Canadian Indians. To a large extent, methodological difficulties inherent in studying Aboriginal populations have prevented researchers from discovering and understanding the magnitude and extent of psychological distress in Native communities. As a result, "health planners

continue to depend on indicators of severe problems such as accidental and violent mortality rates, and data based on contacts with the health, social service, and criminal justice systems" (Young 1988). In order to evaluate accurately the mental-health status of Native communities, a population-based survey is necessary (Young 1988). This study proposes to investigate the Native stress-psychological distress relationship based on population-based survey data obtained from five Alberta Native communities.

An analysis of the Canadian Indian stress experience and its impact on psychological well-being provides an interesting and informative look into the structural conditions of stress. It is argued that many stressful experiences are the result of people's locations within their surrounding social structures (Pearlin 1989). For Pearlin (1989),

> the most encompassing of these structures are the various systems of stratification that cut across societies, such as those based on social and economic class, race and ethnicity, gender and age. To the extent that these systems embody the unequal distribution of resources, opportunities, and self-regard, a low status within them may itself be a source of stressful life conditions.

Vis-a-vis the larger, dominant society, Indians are people who, by and large, appear to share similar social characteristics and circumstances. All Indian people have an ethnic identity that makes them

distinct from the rest of Canadian society. This identity places them in a unique position in relation to the dominant social sector. Yet, Native Indians have distinct and separate cultural identities. Native cultural identities have been distorted by European colonization and the dependence created by Canadian society and its government. Consequently, they are largely recognized not as members of individual Indian nations, but as members of a homogeneous group. Indian identity denotes a structurally imposed dependency. It is the institutionalization of indigenous peoples. The imposed conditions of Native life, such as living on reserve lands, receiving government transfer payments, and being wards of the government through the Department of Indian and Northern Affairs, offers an extreme example of a shared structural experience of dependency.

II. BACKGROUND

Living in an Indian community is a stressful way of life, characterized by high levels of poverty, unemployment, underemployment, poor housing conditions, lack of sanitation, inadequate access to medical services, isolation, low educational

attainment, low occupational skills, and discrimination (Bienvenue 1985; Kunitz 1981; Siggner 1986; Simpson and Yinger 1985). Social pathologies, an established indicator of stress (Hackenberg and Gallagher 1972), occur at a much higher rate for Native peoples than the general population (Lithwick, Schiff, and Vernon 1986).

Current Native mortality levels indicate that their stressful existence is manifested in ways that seriously threaten their survival. In 1982, for example, Native Indians in Canada had a suicide rate almost three times higher than the general population's. The Native suicide rate for those between fifteen and nineteen years of age was well over seven times the Canadian rate. Deaths due to infectious and parasitic diseases (indicating physical vulnerability to stress) occur at a much higher rate for Natives than the general Canadian population. And the Native infant mortality rate, an indicator of socio-economic well-being, is more than twice as high as the general population's. Perhaps the most disturbing statistic of all is that the major cause of death for Canada's Indians is accidents and violence (Lithwick, et. al. 1986).

There are no studies to date which look explicitly

at the stress process within Native communities. Bruce Morrison (1977) in his PhD. thesis looked at the socio-cultural impact on the Cree and Metis population of Grande Cache during the 1970's industrial boom. The virtual overnight invasion of 3,500 workers resulted in immediate social disorganization for the Cree and Metis, and increased their feelings of powerlessness. Prior to the industrial boom, the Grande Cache Cree and Metis subsisted largely as hunters, trappers, guides, and occasional wage labourers. The sudden industrialization and settlement of Grande Cache drastically altered the natural as well as social environment of the area. Although economic development provided increased opportunities for wage employment, the Cree and Metis found it difficult to adjust to the new demands made of them by their new employers. They were not allowed to control the changes affecting them and felt increasingly powerless in their attempt to reduce the stress they were experiencing. Excessive drinking, which was once reserved for special occasions, increased as a means of coping with intense feelings of personal defeat, rejection, and humiliation. Without the ability to control the changes that affected them, by developing culturally acceptable

means to adapt, they were unable to control stress in traditionally consistent ways.

Hackenberg and Gallagher (1972) suggest that the stress associated with modernization is responsible for the excessive rate of accidental injuries among the Papago Indians of southern Arizona. Graves (1967) found that unacculturated Indians, despite their degree of economic access, engaged in higher rates of drinking and deviant behaviour than acculturated individuals with poor jobs because of their stronger feelings of personal deprivation, inadequacy and alienation. Rogers, Shulman and Reisinger (1974) conclude that preventive medical care alone can do little to improve Navajo infant health, which, they argue, is largely determined by social, cultural, and environmental factors.

By virtue of their extremely stressful structural conditions, Native Indian communities may provide interesting evidence as to the effects of stress. While there is no systematic evidence, it would appear that the institutional and personal resources normally used to mediate the effects of stress are inadequate in these communities.

Social scientists have always had the idea of looking at extreme situations for dramatic effects.

While there are no studies which look specifically at the stress-distress relationship amongst Native communities, there are stress studies which have looked at other disadvantaged populations. Previous research has shown that the structural conditions of peoples' lives can produce extreme stress, which causes distress. Studies of Blacks and the poor have consistently demonstrated a relationship between stress and distress. McLeod and Kessler (1990) have found, for example, in general population samples that socioeconomic status differences in vulnerability to life events are not only the result of lower income levels, but reflect the more pervasive disadvantages inherent in the lives of those who occupy lower status positions. They suggest that both social support and personality characteristics are important in understanding differential vulnerability because social support and personality influence the range of coping behaviours available to the lower status individual. Recent evidence also documents a higher risk for depression among the physically disabled (Turner and Noh 1988), married couples experiencing economic hardship (Ross and Huber 1985), full-time working women with jobs of low level complexity (Lennon 1987), native-born Mexican-Americans who have

high levels of acculturation (Burnam, Hough, Karno, Escobar, Telles 1987), and low-income Blacks (Kessler and Neighbors 1986).

III. THE SOCIOLOGICAL STUDY OF THE STRESS PROCESS

The sociological study of stress is concerned with three major conceptual domains: the sources of stress, the mediators of stress, and the manifestations of stress (Pearlin, Lieberman, Menaghan, and Mullan 1981). Until fairly recently, research did not focus on stress as a process, but rather, attention was given separately to its various components. That is, social scientists left unexamined the complex linkages that join the components of stress, concentrating, for example, on the impact of life events on health (McFarlane, Norman, Streiner and Roy 1983; Lin, Woelfel and Light 1985; Wethington and Kessler 1986; Linn, Husaini, Whitten-Stovall and Broomes 1989; and McLeod and Kessler 1990), or the role of chronic strain in depression (Ross and Huber 1985; Newman 1986; and Dressler 1988). Although there is an abundance of research examining each aspect of the stress process, it is suggested (Cronkite and Moos 1984) that knowledge about the linkages amongst these components and their relative importance for

subsequent adaptation is quite limited.

Linking the various components of the stress process is extremely important in the sociological study of stress. Sociologists need to be concerned not only with the mediation and outcomes of stress, but also, and most importantly, with linking stressors to their social structural causes. In other words, social scientists interested in the stress process should focus their research on the causes of stress in addition to the response of the individual to stress. In order, therefore, to make the necessary linkages in the study of stress, and to understand the effects of stressful events or chronic problems, sociologists must trace stressful experiences back to the social, structural contexts in which they occur.

The interrelated nature of the social context of people's lives, i.e., social stratification, social institutions, and interpersonal relationships, influence and shape the experiences of individuals' lives and may result in social stress. The social context of an individual's life should be taken into account when studying the stress process, since the social context is most often fundamental to that process (Pearlin 1989). Looking only at the stressors that reside within an individual's experience leaves

uncovered patterns or regularities that people of similar social characteristics and circumstances may share. Focusing only on the stressors and not their social structural origins may inform us about stress and its outcomes, but does nothing to aid our understanding of the causal determinants of stress. The unique social, structural context of Native life in Canada, then, offers the researcher a valuable opportunity to study the causal determinants of stress.

Sociologists need to be concerned with the socially patterned distribution of the components of the stress process. What is it about the social order that engenders women to experience greater distress than their husbands when confronted with network life events (Thoits 1987)? Why is it that lower-income Blacks have higher levels of depression than their white American counterparts (Kessler and Neighbors 1986)? How can one explain the high number of Native Indian suicides? By examining people's social and economic backgrounds, we can explore the links that "join broader dimensions of social organization to personal stress" (Pearlin 1989).

Despite its shortcomings, stress research has consistentently demonstrated a low but persistent

relationship between life stress and psychological well-being (Turner and Noh 1988). The difficulty inherent in stress research is that stress itself is difficult to define and measure. Without a uniform conceptualization and measurement of this thing we call stress, research results are bound to vary.

A. Life Events as Stressors

Life events have received the most attention in the stress literature. Although life events involve changes in one's life and behavior adaptation, they may not be perceived as negative and, therefore, may not result in distress. Contemporary researchers have found it necessary to distinguish between those events that are perceived as negative to the individual (undesirable events) and those that are not.

B. Chronic Strains

The effect of life events on depressive symptoms may be due, in part, to the interactive effect of chronic strains and life events to produce stress (Pearlin, et. al. 1981). Pearlin, et. al. (1981) suggest that life events may serve to bring into focus already unfavourable life circumstances, giving new meaning to old problems; or that life events can cause new strains or intensify existing strains, which can then eventuate in stress. Billings and Moos (1985)

provide evidence to support these explanations. They found that depressed patients experience significantly more stressors than a non-depressed community control group. In addition, individual patients who experienced more stress after treatment improved less than would be expected given the severity of their depression. Wheaton (1990) has demonstrated that factors in the role history prior to a life event have a major impact on its stressfulness. That is, the stress potential of an event is not an inherent characteristic of the event nor is it the result of coping strategies, but rather, a product of the social environment prior to the event's occurrence. So, although we cannot obtain direct measures of the stressfulness of events, we can, in the case of Native Indians, obtain it indirectly. The Native social environment is a unique and extreme one. The examination of it in conjunction with the impact of stressors will provide insight into the stress-distress relationship. In essence, then, chronic strains and life events can come together to produce stress in at least three ways: 1) events lead to chronic strains; 2) chronic strains lead to events; and 3) strains and events provide meaning contexts for each other (Pearlin 1989).

Chronic strains are the more enduring problems, conflicts, and threats that many people experience in their daily lives (Pearlin 1989). Many severe strains are found in major roles such as employee, spouse, and parent. Other strains cut across roles such as chronic illness, poverty, ethnicity, or living in an area where there is reason to fear crime or violence. Chronic problems are endemic in Native communities and the consequences of these ongoing conditions needs to be explored. Recent studies have documented that it is the pervasive and ongoing conditions in many people's lives that retain predictive power in explaining depression. These studies discriminate between the effects of idiosyncratic and chronic stressors and demonstrate that chronic strains exert a much stronger effect on depression than life events (Wheaton 1983; Billings and Moos 1985; Dressler 1985; Norris and Murrell 1984; Linn and Husaini 1987; Avison and Turner 1988; Turner and Noh 1988; La Gory, Ritchey, and Mullis 1990; Hamilton, Broman, Hoffman, Renner 1990).

C. Stress Mediators

While life events and chronic strains may have independent and convergent effects on depression, similar events and strains do not necessarily eventuate in distress for each individual. It is

suggested that stress mediators are largely responsible for the differences in stress outcomes (Pearlin 1989). It is understood that people respond to stress-inducing experiences in a variety of ways: behaviourally, perceptually, and cognitively (Pearlin, et.al. 1981). The mediating resources typically invoked by individuals in stressful situations are coping and social support.

1. Social Support

Studies in social support occupy a large space in the stress literature. Social support has been studied for its stress-buffering potential (Pearlin et. al. 1981; Turner 1981; Williams, Ware, and Donald 1981; Thoits 1982; McFarlane, Norman, Streiner, and Roy 1983; Mitchell and Moos 1984; Dressler 1985; Cronkite and Moos 1984; Norris and Murrell 1984; Billings and Moos 1985; Parry 1986; Wethington and Kessler 1986; Atkinson,Liem, and Liem 1986; Linn, Husaini, Whitten-Stovall, and Broomes 1989; Dean, Kolody, and Wood 1990; La Gory, Ritchey and Mullis, 1990; Loscocco and Spitze 1990; Sherbourne and Hays 1990; Turner, Grindstaff, and Phillips 1990) as well as its stress-inhibiting potential (Pearlin, et. al. 1981; Turner 1981; Williams, Ware, and Donald 1981; Thoits 1982; Mitchell and Moos 1984; Norris and

Murrell 1984; Billings and Moos 1985; Norris and Murrell 1987; Vaux and Athanassopulou 1987; Turner and Noh 1988; Dean, Kolody, and Wood 1990; Sherbourne and Hays 1990; Turner, Grindstaff, and Phillips, 1990). Studies which have estimated both the direct and indirect effects of social support on depression have produced various results. Many have found the direct effect of social support to be greater than its indirect effect (La Gory, et. al. 1990, Dean, Kolody, and Wood 1990, Norris and Murrell 1987; Wethington and Kessler 1986; Norris and Murrell 1984) although these effects were quite modest. Others have found a direct effect of support but have been unable to determine an indirect effect (Williams, Ware, and Donald 1981), and an indirect effect but no direct effect (Sherbourne and Hays 1990), and, others, no indirect effect but a reciprocal relationship between social supports and stressful events (McFarlane, Norman, Steiner and Roy 1983).

The differences in results in the study of the effects of social support can be attributed to the differences in the conceptual and operational definitions employed. When studying social support, at least three conceptions are in operation: social integration, perceived social support, and received

support. These three conceptualizations are relatively independent of one another. Of the three, perceived social support has received the most research attention and has been consistently shown to be negatively related with distress and other adverse health outcomes (Turner, et. al. 1990). Indeed, perceived social support has been found to be causally "closest" to distress. Recent studies show evidence that perceived support is more important than received support in predicting adjustment to stressful life events (Wethington and Kessler 1986; Dressler 1985) and that the influence of received support has been shown to be mediated by perceived support (Wethington and Kessler 1986). Received support, it is argued, is confounded with need, and therefore may not reflect accurately the amount of support that is available (Sherbourne and Hays 1990). In addition, it has been theorized that social support might be an important etiological factor in the stress-distress relationship because it may decrease the likelihood of event occurrence (Thoits 1982) and that social support may have a direct reciprocal relationship with psychological distress (Turner 1981).

2. Psychological Resources

Mastery and self-esteem are two dimensions of

self-concept that act as psychological resources. It is unclear whether mastery and self-esteem function as protective measures against the stressors one is experiencing, or if the stressors one is experiencing erode one's self-concepts leaving one more vulnerable to stress.

Many studies have investigated the role of self-concepts or psychological resources on distress (e.g. Pearlin, et.al. 1981; Avison and Turner 1988). Most recently, Mirowsky and Ross (1990) demonstrated that responsibility for, or control over, both good and bad outcomes was associated with low levels of depression. Lack of control (mastery) reflects the reality of social and economic status. According to Mirowsky and Ross (1990):

> ... sense of control is associated with social position. High levels of income, education, occupational status, and job autonomy are associated with an increased sense of control; disrupted employment, economic hard times, and barriers to opportunity are associated with a decreased sense of control. The sense of control reflects real resources and opportunities. Real control apparently shapes perceived control, which is associated with decreased depression in part because it allows people to avoid and solve problems actively and effectively.

A strong relationship between mastery and depression has been observed in a representative sample of disabled people (Turner and Noh 1988). McFarlane, et. al. (1983) present evidence that locus of control (mastery) does not interact with stress to reduce levels of subsequent distress, instead, it is independently associated only with baseline levels of distress. This suggests, according to the authors, that individuals who do not feel in control of their lives, are more likely to experience distress whether or not stressful events occur. Reserve Indians are not in control of their lives so it will be interesting to see whether or not this relationship holds true in their case. Kobasa, et. al. (1981) found that personality-based hardiness (disposition toward commitment, control, and challenge) functions as a resistence resource against illness despite constitutional predisposition and stressful events. Prior depressed mood has been found to be related to lower self-esteem, while higher self-esteem is associated with less subsequent depression (Cronkite and Moos 1984). Wheaton (1983) showed that by

increasing personal resources (i.e., decreased fatalism and decreased inflexibility), schizophrenic and depressive symptoms are reduced in the face of environmental stressors, although this relationship does not hold for symptoms of anxiety.

D. Stress Outcomes

The manifestations of stress are varied. Much of the stress research to date has focused on mental health outcomes, especially depression. Depression obtains the highest correlation with stress. Other mental health outcomes also include such disorders as anxiety, schizophrenia, and depressed mood. Other stress indicators include health histories, symptoms of physical health, alcohol and drug abuse, inability to fulfil role obligations, suicide ideation, and the disruption of social relationships (Pearlin 1989).

IV. PRESENT STUDY

The work of Pearlin, Lieberman, Menaghan and Mullan (1981) offers a framework with which one can investigate the stress process in terms of all its components. Pearlin, et. al. (1981) were able to identify which determinants of depression were most appropriate to study. Although the model developed in their work is suited ideally for longitudinal

studies, it is adaptable to cross-sectional analysis. Pearlin, et.al. (1981) were able to capture, with the model they developed, a broad array of social and psychological conditions that combine together over time to create stress. They observed how life events, chronic strains, self-concepts, coping and social supports came together to form a process of stress. The Pearlin, et. al. (1981) study was a major turning point in contemporary stress research because it was able to link together the various components of the stress process. The results of their work provided empirical evidence that a life event (involuntary job loss in this study) could adversely affect enduring role strains, which in turn, eroded positive concepts of the self. The diminishment of the self left individuals vulnerable to experiencing the symptoms of stress, which could be minimized by the intervention of coping and social supports.

The Pearlin, et. al. (1981) stress model will be examined for its generalizability in studying a unique population who share extreme conditions. This study will investigate 1) the severity of psychological distress among five Native populations; 2) the causal determinants of their psychological distress; and 3) how effective are social and psychological resources

in mediating the effects of stressors. The model proposed here includes stressors of an idiosyncratic and social-structural or chronic nature, resources in the form of perceived social support, mastery, and self-esteem, and stress outcome as indicated by levels of depression.

Because of the nature of the socio-economic conditions prevalent in Native life, we would expect to find high levels of stress events and chronic problems, and, consequently, high levels of depression. Similarly, based on general population studies and the fact that Native communities tend to be small and culturally isolated, we would expect that social support, self-esteem, and mastery will be important mediators in the stress process. It is expected that levels of depressive symptoms will vary both within and between communities, since socio-economic differences occur both across and within these communities. Further, because these Native communities differ widely with respect to their cultural roots, social structures, geographic locations, and economic bases, it is expected that the specific impact of economic strain, role strain, life events, chronic illnesses, social support, self-esteem, or mastery on depression will vary

significantly from community to community. That is, the stress process is expected to work in the same way for all communities, but, the significance of particular predictors for each community will probably differ.

Specifically, it is expected that each Native community will experience a large number of life events and chronic illnesses. High levels of economic strain and role strain are also expected. Because life on the reserve is characterized by close proximity to family and friends, similarity in conditions, and a somewhat closed social structure, the perceived availability of social support will be relatively high. Levels of self-esteem and mastery, on the other hand, are expected to fare rather badly given the structural constraints placed on Indian life. Since some of the bands in this analysis are better off financially than others, less isolated than others, and have greater access to the social and economic amenities of the larger cities of Edmonton and Calgary, we would expect to find the communities will vary with respect to the above variables. Similarly, it is expected that variation within communities will also be observed. Not everyone in the wealthier Hobbema band, for example, enjoys the

same economic status. So we would expect to find variability within bands on economic strain, for instance, in addition to the other variables.

To test for the effects of stressors and mediators on depression, a series of multi-variable regression equations will be conducted for all communities. Zero-order correlations between variables are predicted to be similar to those observed in other general population studies. That is, it is expected that life events, chronic illnesses, economic strain, and role strain will correlate positively with depression, and that negative correlations will be present for social support, self-esteem, and mastery.

Because we expect to find high levels of chronic illnesses, life events, role strain, and economic strain, we predict that the partial effects of these variables, while controlling for sex, marital status, and education, will have a significant positive impact on depression. However, Native life is volatile, characterized by high levels of violence, marital instability, financial strain, legal problems, and alcohol problems. Since exposure to multiple life events in Native communities is pretty well the norm, it is predicted that life events will not have as large an effect on depression as will chronic

stressors. We would expect, however, given the variation across communities, that the predictive power for each individual stressor variable on depression will vary for each population. That is, it is expected, for example, that economic strain in one of the wealthier communities will not have the same significance for depression as it would have in one of the poorer communities. It is also predicted that the partial effects of social support, self-esteem, and mastery will have a significant negative impact on level of depression. Again, as with the stressor variables, it is expected that the dominance of one mediator variable over another will vary from community to community.

A. Methods

1. Samples

The data used in this analysis were obtained from Dr. John Gartrell and Dr. George Jarvis, who conducted health surveys on five Alberta Indian reservations (see Figure I): Alexander, Sarcee, Kehewin, Hobbema, and Alexis. Originally, the studies were sponsored by the Alberta Indian Health Care Commission, Health and Welfare Canada, and the respective bands to provide a baseline survey of community health, utilization of services, and a measure of residents' attitudes toward

health services and the control of those services. The surveys were conducted in 1986 and 1987 by trained Native interviewers. A brief description of each reserve and sample is outlined below.

a. Alexander

The Alexander Reserve is located 40 kilometres north-west of Edmonton. It covers an area of 7,281 hectares. Band members are Plains Cree. The population of Alexander is 626; 605 of the reserve residents are band members[1]. Fifty-three percent of the reserve population is male. Financially, the Alexander band is moderately well off. The economic base[2] for the reserve consists of band administration, summer fire-fighting in Banff, land cultivation, tame pasture, and tourist beach development on Sandy Lake. The land has a high capacity for waterfowl and livestock production but there is little development. There are some small business commercial ventures on the reserve. There is year-round access by road. Travel services are available nearby in Morinville and there is a major airport in Edmonton. Electricity is available on the reserve and water is obtained from a pumphouse. The main source of home heating is natural gas. The reserve school offers grades one to seven. Students

in grade eight and nine are bused to nearby Namao (located just north of Edmonton), and students in grade ten to twelve are bused to Morinville, approximately 20 kilometres north of Edmonton. There are 313 Alexander students enrolled in the public school system[3] for the 1990-91 school year and an additional 165 students enrolled in post-secondary institutions. A health centre is located on the reserve.

The Alexander band list was used as a sampling frame from which a systematic random sample of 96 adults, sixteen years of age and older was interviewed. There was a 74 percent response rate.

b. Alexis

The Alexis reserve is located 70 kilometres north-east of Edmonton and covers a slightly smaller area of 6,175 hectares. Band members are Stony Indians. Alexis has a population of 554 and 534 of the residents are members of the Alexis band. Fifty-three percent of the band population is male. Like Alexander, the Alexis band is moderately well off financially. The economic base consists of waterfowl production potential and agricultural potential, but there is little development. Natural resources of forestry, oil and natural gas, and some cattle

ranching are found on the reserve. Some commercial activity occurs on the reserve. Although the reserve has a health clinic on the reserve, it is visited by the health nurse only once or twice a week. There is year-round road access, and bus services can be obtained in nearby Glenevis. The nearest major airport is located in Edmonton. The reserve is serviced with electricity, and natural gas is the main source of home heating. Water is drawn from individual wells. There is a new school on the reserve, which houses students from kindergarten to grade eight. Students in grades nine to twelve are bused to nearby Onoway. For the 1990-91 school term, 223 students were enrolled in the public school system, while 54 students were enrolled in post-secondary institutions.

A random sample of 54 adults was drawn from band lists. The response rate was relatively low at 63 percent, although most (16) of the failures to respond were based on non-contact.

c. Kehewin

The somewhat larger Kehewin reserve is located 250 kilometres north-east of Edmonton and 20 kilometres south of Bonnyville. It has an area of 8,200 hectares. Band members are Plains Cree. There are

733 residents on the reserve (665 members of the Kehewin band), fifty two percent of whom are males. The economic base of the reserve consists of agricultural crop potential, the Pimmie Well Service, Kehewin Steel, Muriel Lake Campsite, and a doll factory. There are a few small businesses on the reserve. Road access is year-round and the nearest travel services are located in Bonnyville. All houses have electricity and water is obtained from a pump house located on Kehewin Lake. Main home heating sources are propane, wood, and natural gas. The reserve has a health clinic. Students from kindergarten to grade ten attend school on the reserve. Other high school students are bused to Bonnyville, Elk Point, and St. Paul. Also located on the reserve is an adult education centre. In the 1990-91 school year 422 Kehewin students were enrolled in the public school system and forty-nine enrolled in post-secondary institutions.

A simple random sample of 108 adults was drawn from band lists. There was a 78 percent response rate. The sample has an overrepresentation of males (sixty percent). Although efforts were made to include more women in the sample, these efforts were hindered by the absence of women in the home. During

the interview time many of the women were unavailable because they were out playing Bingo.

d. Sarcee

The Sarcee (now known as the Tsuu T'ina Nation) reserve is relatively large, covering an area of 27,305 hectares thirteen kilometres south-east of Calgary. The Sarcee reserve has a population of 827, 763 of whom are members of the band. Sarcee band members are part of the Beaver Indian tribe. Fifty percent of the residents are male. Agriculture, natural gas royalties, land leases to cattle ranches and the Department of Defence, tourism and recreational potential form the economic base. The Sarcee band is relatively well off financially, due in part to its close proximity to Calgary. Easy access to the city as well as a well developed infrastructure allows for a number of very successful commercial activities on the reserve. All travel services are obtained in Calgary. The reserve is serviced with electricity, city water, and natural gas is the main source of heat. The reserve has a school, which offers kindergarten to grade three, a daycare, and a public health station. Students from grade four and up are bused to schools in Calgary. There were 337 Sarcee students in the public school system and 55 in

post-secondary institutions during the 1990-91 school year.

A random fixed interval sample was drawn from available band lists to generate a representative sample of 103 adults over 18 years of age. The response rate was 73 percent.

e. Hobbema

Hobbema is the location of four adjacent Cree bands: Ermineskin, Louis Bull, Samson, and Montana. Because the population numbers for some of these bands were not large enough for individual reserve samples, the samples were merged.

The Ermineskin reserve covers an area of 10,296 hectares and is located thirteen kilometres south of Wetaskiwin and 80 kilometres south of Edmonton. It has a resident population of 1,508, 1,368 of whom are band members. Half of the reserve population is male. Ninety-five percent of Ermineskin land has agricultural potential. Economic resources on the reserve include cattle ranching and substantial oil and gas royalties. The reserve also has a retail and grocery store, laundromat, gas station, service station, day care, and post office on the reserve. Hobbema, located in the south-west corner of the reserve, is the major commercial centre. Road access

is year-round. An airstrip service is available in Wetaskiwin and bus service is available in Hobbema. Water can be obtained from a reservoir and individual wells. Natural gas is the main source of home heating. The reservation has a school for grades kindergarten to ten. Students in grades eleven and twelve are bused to Wetaskiwin. In addition to the Muskwaches Cultural College, a nursing centre and ambulance are located on reserve.

The Louis Bull reserve is located 16 kilometres south-west of Wetaskiwin immediately north of the Ermineskin reserve. It covers an area of 3,201 hectares. The Louis Bull reserve has a population of 864 and 779 of the residents are band members. Forty-eight percent of the on-reserve population is male. Seventy-two percent of the land has agricultural potential. Agriculture, ranching, and oil and gas royalties serve as the economic base and there are a few small businesses on the reserve. Travel services are the same as for Ermineskin. The reserve is serviced by electricity. Water is obtained from private wells and natural gas provides the main source of home heating. Students from grades one to nine attend school at Ermineskin and those in grades ten to twelve are bused to Ponoka or Wetaskiwin. A

nursing centre is located on the reserve.

The Montana reserve is located 24 kilometres south of Wetaskiwin and covers an area of 2,825 hectares. The reserve population is 425 and 371 residents belong to the band. Forty-eight percent of the on-reserve population is male. Seventy-eight percent of the land has agricultural potential. The economic base of the reserve consists of oil royalties, agriculture and ranching, heavy equipment operating, construction, and housing and a few commercial enterprises. Travel facilities are the same as for Ermineskin. Electricity is available on the reserve and water is piped in from a reservoir. Natural gas is the main source of home heating. Students in grades one to nine are bused to Ermineskin and those in grades ten to twelve attend schools in Wetaskiwin or Ponoka.

The Samson reserve is the largest of the four reserves. It covers an area of 13,797 hectares and has a population of 3,446. Band members living on the reserve number 3,366. Fifty percent of the on-reserve population is male. Samson is not only the wealthiest of the four bands of the Hobbema, it is also one of the wealthiest bands in the country. Its economic base consists of oil royalties, agriculture, business,

and light industries. In addition to employment in the band administration office, Samson has both waterfowl and cattle raising potential. Transportation facilities are the same as for the other Hobbema reserves. There is electricity available, water is piped from Battle River, and homes are heated with natural gas. Students in grades kindergarten to nine attend school in Ermineskin, while those from grades ten to twelve are bused to Ponoka or Wetaskiwin. The Samson reserve has an ambulance service.

A random fixed interval sample was drawn from the four available band lists to generate a representative sample of 236 adults. The response rate was 71 percent. Of the total Hobbema sample, 61 (26 percent) of the respondents were members of the Ermineskin band, 54 (23 percent) were members of the Louis Bull band, 82 (35 percent) were members of the Samson band, 31 (13 percent) were members of the Montana band, and 8 (3 percent) were members of other bands.

Generally, the Hobbema bands are some of the wealthiest reservations in the country. Oil and gas royalties contribute the most to the economic bases of the four reserves. However, the royalties derived from the oil and gas reserves are subject to

fluctuations in the global market. For the 1990-91 school year, 2,556 students from the Hobbema reserves were enrolled in the public school system and 154 students were enrolled in post-secondary institutions.

2. Variables

a. Demographic

The demographic variables used in this analysis included sex, males coded as 1 and females as 0; marital status, married or living common-law coded as 1, single, widowed, divorced or separated coded as 0; and years of schooling. Unfortunately, the age variable was not available for all samples, as the age question was not asked in Alexander and Sarcee. Because age was not available across all data sets, it was not used in the analysis.

As Table 1 shows, there was a consistent preponderence of females in the samples, with the exception of Kehewin. In these and other settings, males are not as forthcoming as females when it comes to answering survey questionnaires. However, there is another contributing factor for the larger number of female respondents. Indian males more than females tend either to leave the reserve or die at an early age. The sex ratio for Native populations has always

been biased in favour of females. With the exception of Alexander, the majority of respondents were married or living common-law. These percentages are comparable with those obtained in an Edmonton area sample[4], where 56 percent of respondents report either being married or living common-law.

The average number of years of schooling for all bands was variable, but quite low in comparison to an Edmonton area sample (with an average of 13.09 years). The highest mean number of years of schooling was reported in Sarcee at just over ten and one-half. Sarcee's higher number of years of schooling is probably due to their close proximity to schools in the city of Calgary. Alexis had the lowest mean number of years of schooling at 7.94. The lower mean level of education may be the result of the reserve's school only housing students up to grade eight, in addition to the greater distance to the city of Edmonton. Or it could be that education is not a top priority of the Alexis band. There was considerable variation in education within each community. The standard deviation for all bands was more than three years, indicating a high range of years of schooling. This is comparable with the Edmonton Area Study, which found a similar standard

deviation of approximately three years in its sample.

The other variables used in this analysis cover the three dimensions of the stress process. Stressors include life events, chronic illnesses, economic strain, and family role strain. Stress mediators include social support, self-esteem, and mastery. The relevant stress outcome is depression.

To measure the occurance of potentially stressful life events, respondents were asked whether any of the seventeen listed undesirable events had occurred to them in the past year. Events (see Appendix 1) were summed for a total possible score of 17. Respondents were asked if they suffered from any of the 32 chronic illness items. Twenty-four of these items were adopted from the Canada Health Survey Questionnaire (1978). Illnesses (see Appendix 2) were summed for a total possible score of 32.

b. Economic Strain

This variable consists of six original items (see Appendix 3) which asked the degree of difficulty one has in meeting certain financial commitments. Items were originally coded from 1 'not difficult' to 7 'very difficult'. Items were summed and averaged so that the variable values ranged from 1 'low difficulty' to 7 'high difficulty'. The total

possible score is 7.

c. Family Role Strain

This variable attempts to determine how much daily strain exists in the home environment with respect to spouses, other household members, friends, and relatives (see Appendix 4). Respondents were asked if any of the role items had happened to them personally during the past year. Responses indicating strain were summed for a total possible score of five.

d. Social Support

There are 13 original items (see Appendix 5) in this variable. The variable is a measure of the perceived availability of support. The original coding of each of the items ranged from 1 'strongly agree' to 7 'strongly disagree'. Positively worded items were recoded in reverse order so that the variable would range in value from 1 'low support' to 7 'high support'. All thirteen items were summed and averaged for a total possible score of 7.

e. Self-esteem

Self-esteem involves the judgement by an individual of his/her own self-worth. This concept of self is assessed most often by the Rosenberg Scale. A modified version of Rosenberg's (1965) self-esteem scale (see Appendix 6) was used to create the

self-esteem index. Six self-esteem items ranging in value from 1 'strongly agree' to 7 'strongly disagree' were used for the index. Positively worded items were recoded in reverse order so that the variable ranges in value from 1 'low self-esteem' to 7 'high self-esteem'. All items were summed and averaged for a total possible self-esteem score of 7.

f. Mastery

Mastery concerns the extent to which individuals see themselves as being in control of the forces that importantly affect their lives (Pearlin, et. al. 1981). The mastery scale used in this analysis is derived from the Pearlin, et. al. (1981) mastery model. It consists of seven items (see Appendix 7) which range in value from 1 'agree strongly' to 7 'disagree strongly'. Positively worded items were recoded in reverse order so that the new scale would range in value from low to high mastery. The items were summed and averaged for a total possible score of 7.

g. Depression

Psychological distress or depression was measured using the twenty items contained in the Center for Epidemiologic Studies Depression Scale (CES-D) (see Appendix 8) as developed by Lenore Radloff (1977). It

was purposely developed to assess depressive symptomatology cross-culturally and is designed to measure the individual's current level of depressive symptoms, emphasizing depressed mood. The CES-D has been found to be a highly reliable and discriminating instrument (Avison and Turner 1988; Turner and Noh 1988). Scores may vary on the CES-D depending on the range of values used. The higher the score, the greater depression. The twenty items used in this analysis ranged in value from 0 'never' to 4 'very often'. Positively worded items were recoded in reverse order so that the depression scale ranges in value from no depression to very high depression. Items were summed and averaged to yield a depression index which ranges from 0 (no depression) to 4. Many previous studies employing the CES-D, score depression as the sum of the twenty items on a four point scale, with scores ranging from 0, rarely or none of the time, to 3, most or all of the time. Turner and Noh (1988), for example, score depressive symptomatology on a four point scale for a total possible score of 60. According to the United States' National Health and Nutrition Examination Survey, a score of 8.64 out of 60 is considered to be the national norm (Norris and Murrell 1984). This translates into a score of

.58 on the scale used in this analysis. Scores of 16 or higher on the 60 point CES-D reflect the severity of depressive symptoms that have been found to characterize the levels observed in cases of depressive disorder, or clinically depressive symptomatology (Turner and Noh 1988). The corresponding significant depression score for the scale used in this analysis is 1.08.

B. The Level and Variability of Stressors

The frequencies, means, and standard deviations of the stressor variables for each reserve are shown in Table II. Actual frequencies are presented in the first column, and the percentages are presented in parentheses.

1. Life Events

The frequency of life events amongst the reserves was highly variable. The highest maximum number of events observed occurred in Sarcee at twelve. The lowest maximum number of events observed occurred in both the Alexander and Alexis samples, at six. The Hobbema sample had the lowest average number of life events at 1.12, and Sarcee, the highest at 5.28. These averages appear to be quite high when compared to other study samples. For example, comparable representative adult samples have obtained mean

undesirable life events scores of .11 (Thoits 1987), .28 (Wethington and Kessler 1986), and .94 (Cronkite and Moos 1984). Variation within communities was high, with standard deviations ranging from 1.44 events in Alexis to 2.35 in Sarcee. Looking at each of the samples, at least 68.7 percent in Alexander reported having experienced at least one event, 70.7 percent in Alexis, 53.4 percent in Hobbema, 76.7 percent in Kehewin, and fully 100 percent in Sarcee.

2. Economic Strain

Economic strain scores (Table II) have been calculated using a seven-point scale. A score of less than two on the scale is considered to indicate 'low' strain, while a score greater than six is considered to indicate 'very high' strain. Mean scores for reserves did not differ widely and ranged from 2.32 in Hobbema to 3.38 in Kehewin. Standard deviations were moderately high for each sample being greater than one point. Over fifty percent of the Hobbema sample reported experiencing 'low' economic strain. This was expected considering that Hobbema is one of the wealthiest of the five bands. However, the majority of the other band samples reported either experiencing 'moderate' or 'low' economic strain. Unlike the other band samples, none of the Sarcee respondents reported

experiencing 'very high' levels of strain. The percentage of respondents from the other samples who fell into this category was very low at less than five percent. A fairly substantial proportion of the respondents in each reserve claimed to experience 'high' economic strain. The lowest percentage in this category was found in Sarcee at 9.2. This is quite possibly because Sarcee, like Hobbema, is a relatively wealthy band. Kehewin had the highest percentage of respondents reporting 'high' economic strain, at almost 28 percent.

3. Chronic Illnesses

The frequency of chronic illnesses varies widely across reserves. The maximum number of illnesses observed also varies amongst reserves. Alexis and Kehewin reported a maximum number of ten illnesses. Alexander had the highest number of reported illnesses at fourteen. The average number of illnesses in each community ranged from a low of 1.12 in Hobbema, to a high of 2.49 in Alexander. Variation within reserves was quite high. The lowest standard deviation was 1.44 illnesses in Alexis, and the highest was 2.6 illnesses in Alexander. According to the Canada Health Survey of 1978/79, Canadians reported an average of 1.11 chronic illness. Fifty-four percent

of the Canadian national sample reported having at least one chronic problem. This compared to 77.1 percent in Alexander, 62.1 percent in Alexis, 69.5 percent in Hobbema, 48.1 percent in Kehewin, and 81.6 percent in Sarcee.

4. Family Role Strain

Family role strain measures the extent to which the respondent experiences chronic problems related to family members, relatives, and friends. It is measured on a six point scale with scores ranging from zero to five. A score of five equals high role strain. The categories for role strain have been broken down so that a score of one or less is considered to be low strain, and a score of four or more indicates high role strain. Except for Alexis, all communities had an average role strain score that placed them in the 'moderate' strain range. The mean score in Alexis was in the 'low' strain category. While the scores did not vary much across communities, the range within was quite high with standard deviations of well over one point for each sample. It is interesting to note that the majority of respondents in each sample reported experiencing 'low' strain. Less than three percent of the Alexander, Hobbema, Kehewin, and Sarcee samples scored 'very

high' strain. None of the Alexis respondents fell into this category. However, a fairly substantive proportion of each sample reported experiencing 'high' strain. As much as 23.4 percent of the Hobbema sample fell into the 'high' role strain category.

In each of the bands, adults reported experiencing a greater number of life events, on average, than other study samples. Although there are no comparable data from which we can compare life event frequencies, it would seem that a larger proportion than would be expected in a general population sample, experienced at least one, and possibly multiple numbers of life events.

It was expected that economic strain would be quite high for all communities, although the levels of strain would be highly variable both within and between communities. To a certain degree the results of this analysis appear to confirm our expectations. That is, there was a large proportion in each of the samples that reported 'high' levels of economic strain, and the variability within groups was moderately high. However, the similarity in mean economic scores was not what we expected to find. Given the differences in the economic well-being amongst these bands, it was expected that the less

well off bands would experience higher strain than the wealthier ones. Also, mean scores were not as high as might be expected. However, it is most likely that a general population sample would not experience even 'moderate' levels of strain to the same degree as our Indian samples. The lower than expected scores on this variable might be due in part to respondents answering in a socially desirable way. That is, one's financial situation is a highly personal and sensitive matter. One is more likely, therefore, to downplay financial strain than to enhance it. Also, economic strain scores might reflect the relativity of strain. In other words, compared to their own standards as well as those of the community, an individual, though poor, may not perceive himself/herself to be so in relation to others. In addition, the economic strain items may not be culturally relevant. For example, it might not be relevant to ask if it is difficult to pay monthly utility bills if the band looks after the payment of utilities.

The observed frequency of chronic illnesses, and the variation within reserves, as well as the differences amongst reserves confirmed our expectations. Mean family role strain scores were not as high as expected, however the variation within

groups was very high. This suggests that family role strain may be an important factor in Indian life, especially when one takes into account the large proportion of the samples that reported experiencing 'moderate' to 'high' of strain. The similarity in mean family role strain scores across bands suggests that chronic role strain is a problem shared by all communities.

Overall, adults in all communities reported experiencing a high number of life events, a moderately high level of economic strain, a high number of chronic illnesses, and a moderately high level of family role strain. Levels of stressors varied highly within communities, and, for the most part, between communities.

C. Social and Psychological Resources

Table III displays the frequencies, means, and standard deviations of the social and psychological resources variables for each reserve. The first column contains the actual frequencies for each category. Percentages of the samples that fall into that category are reported in parentheses to the right of the first column. All resources variables were scored on a seven point scale which ranged in value from 1, low, to 7, high. Categories in this table

range from low, which equals a score of two or less, to very high, which equals a score of greater than six.

1. Social Support

The average scores for social support were high for all communities. The lowest score of 5.04 was observed in Kehewin and the highest, 5.55, in Alexander. A large majority of respondents in each reserve reported 'high' social support and a high percentage reported perceiving the availability of social support as 'very high'. None of the communities reported 'low' support except for Hobbema at less than one percent. Just over 20 percent of the Alexis sample reported perceiving support availability to be 'moderate' or less, as did fourteen percent in Kehewin, twelve percent in Hobbema, eleven percent in Sarcee, and six percent in Alexander. As predicted, perceived support was high for all reserves, but the standard deviation for all samples was moderate at approximately one point. These high social support scores may reflect a social desirability bias.

2. Self-Esteem

On the seven point scale, mean self-esteem scores were reported to be 'very high' for Alexander, Alexis, and Sarcee. The mean self-esteem scores in Hobbema

and Kehewin fell into the 'high' category (a score of four up to and including six). Scores were quite high and may reflect a social desirability bias. Only a very small percentage of Hobbema and Sarcee respondents reported having 'low' self-esteem. The majority of respondents in Alexander, Alexis, and Sarcee scored six or higher in contrast to the majority in Hobbema and Kehewin, who scored between four and six points. Within group variability was moderate, with standard deviations of less than one point in Alexander, Alexis, and Kehewin, and just over one point in Hobbema and Sarcee.

3. Mastery

Mastery scores were much lower for all reserves than self-esteem scores. Perhaps the mastery instrument was more sensitive to the reality of Native life because it tapped into that one dimension of their lives reflects their social position in relation to the dominant culture. That is, being in a position of dependence brings into focus the lack of control one has over one's life. Overall, sample mean scores fell into the 'high' range for all communities, but variability was quite high. Average scores ranged from a low of 4.74 in Hobbema to a high of 5.19 in Sarcee. Within sample scores were highly variable,

with standard deviations ranging from 1.08 in Alexis, Kehewin, and Sarcee, to 1.20 in Alexander.

Social and psychological resources appear to be moderately high amongst these communities. As expected, mean social support scores were high and fairly consistent across communities. Variation within groups for social support was moderate, which may indicate the importance of close social networks for Indian peoples. Differences between reserves were minimal, again, testimony to the fact that living in a close, familiar community lends itself to the perception that help from family and friends is available if the need arises.

Mean self-esteem scores were much higher than expected. Over ninety percent of all respondents scored more than four on the scale, indicating a 'high' level of self-esteem in all communities. It could be argued that the high self-esteem scores may not accurately reflect estimates of self-worth in these communities. Respondents may have answered the self-esteem questions in a socially desirable or, if you will, personally desirable fashion. Self-esteem, like financial situation, is a deeply personal matter. Perhaps Native individuals would rather deny low self-appraisals than admit to themselves and

others that they are worthless. After all, a low self-image is a stereotype that has been thrust upon them since their settling on reserve land. Self-esteem scores, on the other hand, may be accurate. According to Anthony Fisher and George Jarvis (1991 conversations), Cree males, in particular, have always had a high sense of self-esteem.

Mastery scores, as was observed, were lower than self-esteem scores, but still higher than would be expected. Variation within reserves was high, as expected, and a substantial proportion of respondents reported only moderate levels of mastery. The lack of variation across reserves was not predicted. This could be due to the fact that all of these reserves have attempted to take more control over important life issues such as education, welfare, policing, and the like. In addition, the similarity in mean scores most likely reflects the similarity in dependent status for all reserves. The larger proportion of respondents who reported 'high' to 'very high' levels of mastery may, again, be the result of social desirability. If we were to give these same questions to a general population sample, it is quite possible that the number of respondents falling into the 'low'

and 'moderate' categories would be much smaller than for these samples.

D. Stress Outcome

1. Depression

It will be recalled that depression scores are on a five point scale which ranges from zero, no depression, to four, extremely high depression. Also, depression scores of greater than 1.08 in general population samples have been used to indicate clinically depressive symptoms and suggest the need for clinical intervention. Table IV presents the frequencies, means, and standard deviations of depression scores for all reserves. Frequencies are presented in the first column and percentages in parentheses. Categories have been defined as: low, a score of 0 to .5, moderate, greater than .5 but less than .8, high, greater than .8 and up to 1.08, very high, greater than 1.08 and less than 2, and extreme, greater than 2.

Self-reports of depression symptoms are high in all five communities. The mean score for all communities is greater than 1.08, indicating very high relative frequencies of depressive symptomatology. If a score of 1.08 is to be considered meaningful, it would appear that the high occurrence of reported

depressive symptoms is clinically significant. The lowest mean score (1.15) occurs in Sarcee and the highest (1.52) in Kehewin. These scores are much greater than the American general population norm of .58. Indeed, a majority of every community sample scored greater than1.08. Almost 65 percent of the Kehewin sample and approximately 53 percent of the Alexander, Hobbema, and Sarcee samples scored greater than 1.08. The modal category for all samples was 'very high' depression. A minimum of 32.4 percent in Hobbema reported scores of 1.08 or greater and a maximum of 47.3 percent in Alexander had significant depression scores. It was expected that depression scores would be high for all communities, but it was not expected that scores would be as high as they were.

To put this in perspective, Turner and Noh's (1988) study of physical disability and depression compared a physically disabled group with a representative sample of adults on depression levels. Thirty-seven percent of their physically disabled sample scored greater than sixteen on the 60 point CES-D (equivalent to 1.08 on this four point scale). Only twelve percent of the comparison, general population sample scored higher than sixteen on the

same scale. In the five Native communities, over fifty percent of each sample scored greater than 1.08 on our scale (or 16 on the 60 point CES-D).

There was high variability within each sample. Standard deviations ranged from a low of .51 of a point in Alexander, to a high of .85 of a point in Kehewin. It would appear from the above statistics that many Native individuals are at an extremely high risk for developing significant depression. Indeed, a large proportion of all the samples obtained depression scores which suggest the relevance of intervention.

Given the above descriptive analysis, it will be interesting to discover how the stressor and resources variables relate to one another in multi-variable regression equations.

V. RESULTS

A. Correlations

It will be recalled that sex, marital status, and education were predicted to correlate negatively with depression. Stressor variables in the regression equation were predicted to correlate positively with depression. In addition, it was predicted that resources variables would correlate negatively with

depression. The correlation coefficients of all independent variables with the depression variable by reservation are presented in Table V. All the correlations were in the expected direction with the exception of life events in Sarcee and education in Alexander. These two correlations were close to zero. The zero-order correlation coefficients for Alexander showed moderately strong correlations of depression with sex, social support, life events, chronic illnesses, family role strain, self-esteem, and mastery. Moderately strong correlations with depression were observed for sex, life events, family role strain, and mastery in the Alexis sample. The Hobbema correlations were strong for social support, economic strain, life events, family role strain, self-esteem, and mastery. A number of moderately strong correlations were observed in the Kehewin sample, including sex, economic strain, life events, chronic illnesses, family role strain, self-esteem, and mastery. Zero-order coefficients in the Sarcee sample were moderately strong for social support, economic strain, chronic illness, family role strain, self-esteem, and mastery.

Some consistently strong correlations were observed. All samples showed strong correlations for

family role strain, self-esteem, and mastery. The strongest correlation between family role strain and depression was observed in Kehewin at .487, explaining almost 24 percent of the variance in depression. The zero-order coefficient for self-esteem was highest in Hobbema at -.421, explaining almost 18 percent of the variance. Mastery had the highest correlation in Kehewin (-.539), explaining 29 percent of the variance in depression alone. All other mastery correlations were moderately high, explaining at least 17 percent of the variance in depression, except in Alexis where the coefficient was -.306.

Some variables were inconsistently correlated with depression. Sex, for example, was observed to have a strong effect in Kehewin, but with the possible exception of Alexis, its zero-order coefficient was found to be relatively small in the other communities. Social support had moderately strong correlation coefficients in Alexander, Hobbema, and Sarcee, but relatively low coefficients in Alexis and Kehewin. Economic strain had virtually no effect in Alexander, little effect in Alexis, but a moderately strong effect in Hobbema, Kehewin, and Sarcee. Life events had no effect in Sarcee, a moderate effect in Alexander, Hobbema, and Kehewin, and a moderately high

effect in Alexis (r = .341). The zero-order coefficients for chronic illnesses were close to zero in Alexis and Hobbema. Moderate effects were observed in Alexander and Sarcee, while in Kehewin, a moderately strong effect was observed (r = .344).

Consistently low correlations of depression with education and marital status were observed in all samples.

The patterns of observed zero-order correlations suggest that the proposed model will probably work reasonably well for all samples. Anomalous results occur for some of the variables, but by and large, the model seems appropriate. Generally speaking, both the stressors and resource variables appear to be operative for the Indian samples, although the size of effect differs across samples for these variables.

B. Multivariate Results

According to the Pearlin, et. al. (1981) model, one's exposure to stress may be influenced by predisposing factors found in the structural context of one's life. Stress is hypothesized to influence psychological well-being both directly and indirectly via moderating factors such as social support, self-esteem, and mastery. In addition, psychological well-being may be affected by predisposing factors

both directly and indirectly via stressors and moderating factors. The analysis pursued in this study does not attempt to differentiate between the direct and indirect effects of variables. That kind of analysis is best done using longitudinal data. The purpose of this study is to determine which factors have a direct and significant effect on Indian psychological well-being and to test for these effects using the Pearlin, et.al. (1981) stress model.

Before examining the comprehensive Pearlin, et. al. (1981) model, only the stressors were regressed on depression. This was done to examine the appropriateness of regressing stressors on depression in the Native samples. Following the stressor regression, additional control variables were added to the equation to determine whether the stressors would retain their predictive power in the presence of controls. Multiple regression equations were estimated separately for each band. The rationale behind separate estimates is that each of these bands is culturally, socially, economically, politically, and geographically different from each other. The first test looked only for the net effects of stressors on depression. The first set of regression equations obtained estimates for life events, family

role strain, economic strain, and chronic illnesses (Table VI). An examination of the Pearlin, et. al. (1981) stress model was performed in the second set of multiple regression equations (Table VII). All of the independent variables were included in these analyses. In these regressions the partial effects of the various stressors and mediating resources on depression were examined, while controlling for sex, marital status, and education.

1. The Effects of Stressors on Depression

The results of the regression of depression on stressors for each reserve are presented in Table VI. Life events, family role strain, economic strain, and chronic illnesses were regressed separately on depression for all bands. The stressor regressions obtained R^2s of greater than .18 for each sample. The Kehewin regression obtained the highest R^2 at .360, and Alexis the lowest at .183. All slopes were in the predicted direction with the exception of economic strain in Alexander and chronic illnesses in Hobbema. These anomalous net effects are the result of these same variables' negligible zero-order coefficients observed in the correlation matrix. In other words, economic strain in Alexander and chronic illness in Hobbema had no effect on depression.

When looking at the partial effects of each variable, it should be noted that the net effect of a single variable is dependent upon other variables in the equation. Essentially, we are looking at the net effect of a particular variable while holding the remaining variables at zero. Therefore, the magnitude of the partial effect should always be considered in terms of the other variables in the equation and not as a single determining factor.

The partial effect of life events on depression was small (less than about five one-hundredths of a point) for each of the reserves except Alexis. Not including Alexis, for each life event experienced, individual depression scores would increase, on average, by about .05 of one point. In other words, it would take a minimum increase of twenty life events, holding all other variables constant, for an individual's score to become clinically relevant. The net effect of life events on depression in Alexis, on the other hand, was .129. For every single increase in life events, an individual's depression score would increase by approximately .13 of a point. All things being equal, to attain clinical relevance, an individual would have to experience eight life events alone. Although the Alexis sample did not report

experiencing more than six life events, it is quite reasonable to expect, judging from the frequencies observed in the other samples, that one could experience eight life events in Alexis. From this perspective, it would appear that the net effect of life events on depression was relevant for Alexis, but its partial effect in Alexander, Hobbema, Kehewin, and Sarcee was small.

The net effect of family role strain on depression differed widely across communities. In the regressions, role strain achieved statistical significance at a minimum .05 level in all communities except Alexis. The partial effect of role strain on depression in each of these communities was moderate. The largest effect was observed in Kehewin (b = .268). Here, a one point increase in role strain would result, on average, in a .27 point increase on the depression scale alone. All other things being equal, it would take a role strain score of four (out of a possible score of five) to bring an individual's depression score up to 1.08 on its own, the cut-off point for significant depression. A score of four on the role strain index is not unrealistic. However, this magnitude of effect was only predictable in Kehewin. The other samples obtained significantly

smaller partial effects, and would require, on average, at least a score of eight, holding other variables constant, on the role strain index to have an appreciable effect alone on depressive symptoms. A score of eight, however, is not possible on this variable. So, with the exception of Kehewin, role strain appears to have a moderate effect on level of depression in these samples.

Economic strain had a varying effect on depression in these samples. As previously noted, the net effect of economic strain in the Alexander sample was virtually zero. The partial effect of economic strain in the Alexis sample was also low at .022, as was Kehewin's at less than one-tenth of a point. Only the slopes for Sarcee (b = .146) and Hobbema (b = .216) attained statistical significance at the .01 level. For every point increase on the economic strain scale, Sarcee individuals would obtain an average of a .15 point increase on their depression scores. All things being equal, it would take more than a score of seven on the economic strain scale (total possible score equals seven) alone to obtain a depression score of clinical relevance. In the Hobbema sample, a one point increase in the economic strain scale would result, on average, in .22 point increase on the

depression scale. To obtain a score of 1.08 on the depression scale, an individual would have to have a score of at least five on the economic strain scale alone. Since the probability of obtaining a score of five or higher in Hobbema is within realistic bounds, it would appear that economic strain is of some import in this reserve. This is particularly interesting, since Hobbema is a band, along with Sarcee, which is better off economically than the others.

Chronic illnesses appeared to contribute relatively little on its own to depression levels in all communities. The largest net effect was observed in Kehewin at .089. To obtain a clinically relevant depression score, individuals in Kehewin would have to suffer from approximately twelve chronic illnesses alone, while holding all other variables constant. None of the Kehewin sample reported experiencing more than ten illnesses, but the possibility does exist. Chronic illnesses had a statistically significant effect in Sarcee, Alexander, and Kehewin, but the size of these effects only increases the depression score by less than .09 of a point with an increase of one illness. The anomalous result of this variable for the Hobbema sample has already been discussed and again, the effect of this variable is virtually zero.

The effect of chronic illnesses in the Alexis sample was also close to zero (b = .032).

Overall, the results of the stressor regressions indicate that stressors have a role to play in explaining depression for the above Native communities, but the effects of these stressors are not large. Chronic role strain appeared to be the most consistent predictor of depression for all communities, but as mentioned, these effects were moderate in and of themselves. The standard error for the slopes of all variables in the Alexis sample, which were consistently higher here than in the other samples, may explain why this regression failed to obtain any statistically significant results. This was largely a function of the small sample size and low response rate. As predicted, the importance of any particular stressor on depression would most likely vary from band to band. The partial effects of life events had a sizable impact only in Alexis. Family role strain had the greatest impact in Kehewin. Economic strain, ironically, had the greatest net effect in Hobbema, and the net effect of chronic illnesses was the most sizable in Kehewin.

2. Stress Regression Controlling for Demographic Variables

To examine the Pearlin, et. al. (1981) stress model, all independent variables were regressed on depression. The multivariable regression equations were performed for all bands to examine whether or not, in the presence of controls and mediator variables, the effects of the above stressors could still be observed.

a. Demographic Variables

The results of the regression of depression on stressors, resources, sex, marital status and education for each reserve are shown in Table VII. Numbers in the first row for each variable refer to the unstandardized slope (b); numbers in the second row, in parentheses, refer to the standard error of the unstandardized slope (SEb); and numbers in the third row refer to the standardized slope (B).

Females in all communities except Hobbema, suffered more depressive symptoms than males, although this effect was quite small for the most part. In Kehewin, however, females scored, on average, over half a point higher on the depression scale than males. Males in Hobbema, on the other hand, seemed to suffer more depressive symptoms than females (b = .131), although this effect was modest. This anomalous result may be due to fewer males, in

comparison to the other communities, participating in the survey (only 33 percent of the respondents were male).

Being married had a modest, negative effect on depression in all communities. This effect was somewhat larger in Kehewin (b = -.265), where an individual who is married or living common-law can expect to have, on average, a lower depression score than his/her single counterparts. The effect of education was zero for all communities. Unexpected positive effects of education were observed in Alexander and Sarcee, but, as mentioned, these effects were negligible. Indeed, these effects were similar in magnitude to the zero-order correlations. In essence, education does not have any effect on depression for any of the reserves, with the possible exception of Hobbema. The zero-order education coefficient in Hobbema was observed to be moderate (r = -.196**), but this effect was reduced by the introduction of mastery, economic strain, self-esteem, social support, and life events into the regression equation.

b. Stressors

(1) Life Events

The net effect of life events in this regression

did not produce any sizable results, except in the community of Alexis. The partial effect of life events in this regression was consistent with the previous stressor regression, where only the Alexis sample presented a sizable effect. With the addition of controls, the life events slope increased in Alexis from .129 in the stressor regression to .150. This observed effect can be interpreted as meaning that with every additional life event alone, an Alexis individual would increase his/her depression score on average by .15 of a point. It would take approximately seven life events, all things being equal, to obtain a depression score of 1.08.

(2) Economic Strain

In the previous stressor regression, Hobbema was the only community to have a sizable economic strain effect (b = .216). While controlling for all other variables in this regression equation, the Hobbema sample also had the only sizable effect (b = .112), which was statistically significant at the .01 level. The partial effect of economic strain was reduced in Hobbema by the addition of the other independent variables. If other variables in the equation were held at zero, it would take an economic strain score of greater than nine on the seven point scale to

obtain a clinically significant depression score.

(3) Family Role Strain

The partial effect of family role strain in these regressions was reduced from the previous stressor regression with the addition of the other independent variables. While the effect of family role strain on depression was still substantial in Alexis, Kehewin, and Sarcee, it was virtually zero in Alexander and Hobbema. The partial effect of role strain was statistically significant at a minimum .05 level for all communities except Alexis. The largest net effect of role strain was observed in Kehewin (b = .179). The smallest net effect was observed in Hobbema (b = .082).

(4) Chronic Illnesses

While controlling for the other independent variables in the equation, the net effect of chronic illnesses on depression differed in magnitude from the previous stressor regression in all communities. All effects, however, remained very small. The Alexis effect was reduced to zero from the previous slope of .032. The Hobbema effect was zero (b = .001). The effect of chronic illnesses in the Alexander sample increased from .043 to .060, and was statistically significant at the .01 level. The effect in Kehewin

was reduced to .045 from its former .089, and has no statistical significance. The chronic illness effect observed in Sarcee was reduced to .045 from .074 and is not statistically significant. Although almost all effects were either small or zero, chronic illnesses did appear to play a significant role in Alexander.

c. Stress Mediators

(1) Social Support

The net effect of social support on depression was very small, and was not statistically significant in Alexis, Kehewin, and Sarcee. The small Kehewin effect (b = .027) was not in the expected direction but it was virtually zero. Sizable net effects of social support were observed in Alexander and Hobbema. The Hobbema slope (-.117) was moderate and statistically significant at the .05 level. Alexander exhibited a moderately large slope of -.250 which was statistically significant at the .001 level. The standardized slope for this effect in Alexander is quite substantive at -.428. Here a standard deviation increase in social support would decrease depression by .43 of its standard deviation.

(2) Self-Esteem

The observed net effect for self-esteem was modest in all reserves. None of these effects were

statistically significant at the minimum .05 level, with the exception of Hobbema. The low effects observed in Alexis and Kehewin were not in the expected direction but were virtually zero. The partial effect of self-esteem was statistically significant at the .01 level in Hobbema but its effect was moderate (b = -.149). However, in Hobbema, a score of seven on the self-esteem scale alone would result, on average, in a 'high' depression score of 1.04.

(3) Mastery

The sample slopes for mastery were all in the predicted direction. The small negative effect observed in Alexander and Sarcee were not significant at the minimum .05 level. The larger negative slope observed in Alexis (b = -.122) was also not significant at the .05 level. Larger net effects were observed in Hobbema and Kehewin (b = -.168 and -.219, respectively). The Hobbema slope was statistically significant at the .001 level, and the Kehewin slope, at the .01 level. It would take a score of just over six on the mastery scale alone to obtain a clinically significant depression score in Hobbema. On the other hand, it would only take a score of five in Kehewin to obtain a significant depression score.

VI. DISCUSSION

This examination of the stress process in each of the five Alberta Native communities has produced some interesting results. It was predicted that given the economic, social, cultural, and regional variations amongst reserves, regression results, especially in terms of stressors, would also vary. That is, the importance of particular predictor variables on depression would differ between communities. Regressions results in this analysis appear to confirm this prediction. This is an important finding because it supports the idea that although Canada's Native communities share similar social structural conditions, communities differ in response to the stressors in their social environment. How they do, and what they react most to is the chief aim of this study. Whether one can use an accepted sociological model of the stress process to analyze the Native stress experience is the secondary question of this study.

In light of the results of this study, we will attempt to place our Indian stress regressions in the context of previous findings. Many of our results will not be directly comparable to other studies

because it is difficult to find similar measures of independent variables regressed on the same depression instrument. While the use of the CES-D instrument as a measure of depression is fairly widely accepted, few studies have used the same indicators for the independent variables. In fact, there are no studies which have used all the independent variables in this analysis, and only two or three studies which have used some comparable independent variables. It is hoped, though, that the discussion to follow will help place the Native stress experience in perspective with respect to other studies.

It should be noted here that although we were unable to use age in our analysis, the importance of age should not be overlooked in future studies. Age is very closely related, for example, to the number of chronic illnesses one experiences. Future studies must include age if they are to be comprehensive.

General population studies (e.g. Kessler and McLeod 1984) have shown that women experience more depression than men. That is, sex (when male is coded 1) most often has a negative effect on depression. The results of this analysis are consistent with previous findings, except for the anomalous Hobbema regression where sex had a positive effect on

depression. The size of effect across our samples was a bit larger than other studies have reported (e.g. Turner and Noh 1988) and this difference was especially large in Kehewin. It is unclear why Kehewin in particular should have such a large negative effect. This result could be due to the greater proportion of males in the sample (60 percent). It will be recalled that many women in Kehewin were unavailable to be interviewed because they were out playing Bingo. Perhaps the females interviewed in Kehewin were more depressed than females in the other samples because they were unable, for one reason or another, to go out and play Bingo like most of the women in their community. Conversely, in the Hobbema sample sex had a positive effect. This sample had the largest proportion of female respondents (67 percent). Why the men in this sample were more depressed than the women is a moot point. It is difficult to speculate why this is so. It is hoped that future research could shed some light on this anomalous situation.

It has been suggested that women may be more vulnerable than men to certain stressful experiences, especially with respect to network losses or uncontrollable events (Thoits 1987). Others have

found an absence of such sex differences (Newmann 1986). Pearlin (1989) argues that men and women may not differ in vulnerability to stressors, but may, instead, differ with respect to how stress is manifested. That is, perhaps women are more likely to manifest stress in depressive symptomatology as opposed to men who are more likely to manifest stress in increased alcohol consumption. On the whole, it would appear that although females tend to experience higher distress levels than males, males in these communities still appear to be suffering higher levels of distress than in other general population samples. It is suggested, however, that future work on the Native stress experience should include the observation of multiple outcomes. The investigation of alcohol consumption as a possible stress outcome would certainly be worth considering, in view of the fact that alcohol abuse is a persistent problem in Indian communities.

The results of the net effect of marital status on depression in this analysis were consistent with results found in other studies. Being married has a negative effect on depression because the companionship that goes along with being married, helps to buffer the effect of stressors.

The net effect of life events on depression in our regression analyses has proven to be modest. The Alexis sample was an exception, however. A caveat with respect to the Alexis results does exist. Because of the small sample size and the low response rate, results of the Alexis regression cannot be considered reliable. By and large, the relationship between life events and distress in this study was persistent but modest. Stepwise regressions (not shown) illustrated that the effect of life events was reduced when social support, role strain, chronic illnesses, and mastery entered the Alexander equation; reduced when mastery, economic strain, self-esteem, and social support entered the Hobbema equation; reduced when sex, mastery, and role strain entered the Kehewin equation; and reduced when mastery, role strain, social support, and economic strain entered the Sarcee equation. It could be that the magnitude of effect observed in Alexis was a statistical aberration. It could also be that life events have a more profound impact on psychological well-being in this community. It is difficult to determine, with the information available, exactly why this relationship only occurred in Alexis.

The modest but consistent effect of life events

observed in the other populations in this analysis was in keeping with other research. While it could be said that this weak relationship may understate the importance of life stress, it is becoming increasingly apparent that the cause most likely lies in the inadequacy of the measuring instrument (Avison and Turner 1988).

There are many methodological problems associated with the life events instrument used in this and previous studies. Funch and Marshall (1984) have shown that respondents have difficulty in remembering life events over a one-year period. The fall-off rate varies as a function of the recall period, the type and seriousness of the event considered, and the demographic characteristics of the respondents.

Avison and Turner (1988) found that the sensitivity of the life events measure is improved when certain factors are taken into account, such as, the perceived desirability or undesirability of the event at the time of its occurrence; the duration of the experienced effects following the event; the extent to which the events had been successfully resolved; the person to whom the event occurred; and the time of onset and conclusion of each reported event. The results of their investigation provide

evidence that recent eventful stressors and events of intermediate length are significant predictors of depression, but these effects dissipate fairly rapidly. Results of Wheaton's (1990) study demonstrate that factors in the role history prior to a life event has a major impact on its stressfulness since, "the stress potential of an event is neither an inherent characteristic of the event nor a result of coping strategies, but instead is a product of the social environment prior to the occurrence of the transition."

Given the large number of life events observed in our samples, it would be extremely beneficial if future research into the Native stress experience took into account the measurement refinements noted above. The use of more sensitive life event measures in subsequent research cannot help but enhance our understanding of the role life events has to play in the stress experience of Native peoples.

The net effect of economic strain in these regressions produced some anomalous results. This was most likely due to a problem of measurement. It is understood that poverty is a common condition amongst our Native peoples. While it could be that asking deeply personal questions about one's financial

situation causes the respondent to downplay his financial difficulties, cultural differences could also influence opinion. Respondents may be reporting the degree of financial difficulty they experience in relation to the experience of others in their community. For example, the Hobbema regression obtained the largest effect for economic strain, yet Hobbema is the wealthiest community in this study. Perhaps some of the respondents, in contrast to others on the reserve, perceive their financial distress to be more severe because, in relative terms, they are much worse off than other wealthy band members. That is, in a wealthy reserve relative deprivation is much more keenly felt by the poorer members of that reserve than it would be for a reserve where members are uniformly poor. Being a poor member of a wealthy reserve, therefore, brings economic strain into focus. In addition, the economic strain questions may not be appropriate, for example, for respondents who sole source of income is government welfare payments, or whose accommodation has been provided by the band. Another factor which may contribute to economic strain in Hobbema is the fact that it is well-known that Hobbema is very wealthy because of its oil and gas royalties. Many businesses in the surrounding areas

use this knowledge to extract money out of Hobbema. There are a number of high priced consumer goods easily accessible to Hobbema residents. Car dealerships are just one example. Wetaskiwin, which is a relatively small town, has at least six car dealerships which no doubt are there to accommodate Hobbema residents. When Hobbema band members reach the age of eighteen, they are automatically given an oil and gas royalty payment which has been held in trust up until that time. These payments are worth tens of thousands of dollars. One of the first places a male Hobbema teenager goes to spend his cheque is the car dealership. Other high priced items are also purchased. Once the money is gone, financial difficulty follows.

Statistically, economic strain was strongly correlated to depression in Hobbema, Kehewin and Sarcee. The zero-order coefficients were greatly reduced, however, with the introduction of other control variables. In the Hobbema sample, the effect of economic strain was reduced by the introduction of mastery into the equation. Presumably, those who feel a strong sense of mastery also feel less economic strain. Or, conversely, those who do not find themselves financially strained also feel more in

control of their lives. The effect of economic strain in the Kehewin sample was reduced by the introduction of sex, mastery, role strain, and life events in the equation. The large reduction in the effect of economic strain in Sarcee was the result of the contributing effects of mastery, role strain, and social support.

The partial effects of family role strain were small in Alexander and Hobbema, and modest in the other reserves. Again, zero-order correlations were strong for role strain in all reserves. Stepwise regressions revealed that the effect of family role strain was reduced by the incorporation of other control variables in the equations. For Alexander, the partial effect of family role strain was greatly reduced by the introduction of social support. The net effect of family role strain in Alexis was reduced with the introduction of life events and mastery. The net effect of family role strain in Hobbema was reduced when mastery, economic strain, self-esteem, social support, and life events were entered into the equation. When sex, and mastery were entered into the Kehewin equation, the net effect of family role strain was substantially reduced. The mastery variable had the strongest reducing effect on family role strain in

the Sarcee regression.

It was hoped that the family role strain instrument would tap into some of the more enduring problems individuals experience living and meeting with family and friends. Our results suggest that family role strain is a factor in the stress-distress relationship. Future research should, however, attempt to increase the sensitivity of the family role strain instrument since role strain is of particular importance in the Native stress experience.

Chronic illnesses are a major part of Indian life. However, the partial effect of chronic illnesses on depression were extremely small in our analyses. Strong zero-order correlations for chronic illnesses and depression were observed in Alexander, Kehewin and Sarcee. However, these relationships were all reduced with the introduction of other variables in the equations. The reduction of effect in Alexander was attributable to the addition of social support and family role strain; in Kehewin to the addition of sex, mastery, family role strain, and life events; and in Sarcee to the addition of mastery, family role strain, social support, and economic strain. Individuals in our samples reported a much higher rate of chronic illnesses than a Canadian

national sample, we would expect a larger statistical effect. It could be that experiencing a number of chronic illnesses is such a normal part of life in these communities, that the addition of extra illnesses does not have the impact it might have in a general population.

The beneficial effect of social support was most evident in Alexander, but the partial effect was quite low in the other communities. While social support scores were very high, the partial effect of social support on depression was modest for most reserves. This is consistent with other findings (e.g. Turner 1981; Dressler 1985). Statistically, very strong zero-order correlations were observed for social support with depression in all reserves except Alexis and Kehewin, where the relationship was modest. The net effect of social support remained essentially the same in the Alexander regression, but its effect was reduced by the introduction of mastery, economic strain, and self-esteem in Hobbema, and mastery and family role strain in Sarcee.

The problems associated with social support revolve around its conceptualization as well as its operationalization. Perceived report, which was used in this study, has most often been used to measure the

dimensions of support that have been outlined by Cobb (1976). Support is received by an individual through formal and informal relationships. From these relationships the individual receives the emotional, cognitive, and material supports necessary to overcome stressful experiences (Jacobson 1986). Cobb (1976) describes social support as the information that leads an individual to believe that he or she is cared for, loved, esteemed, and valued, and belongs to a network of communication and mutual obligation. It could be argued that the instrument used in this study as well as in previous ones, was not capable of finding all the dimensions of social support. Support appears to be a complex phenomenon, and measuring it accurately may require an analysis of its constituent elements (Jacobson 1986). Moreover, given the cultural diversity of our samples, measures of social support should take into account the cultural significance of certain social support items.

It is curious that the high levels of self-esteem observed in each of the samples did not result in a very large net effect in the regression equations. The partial effect of self-esteem was reduced substantially by the introduction of various control variables in each of the sample regressions.

Contributing to the reduction were social support, family role strain, chronic illnesses, and mastery in Alexander; life events and mastery in Alexis; mastery and economic strain in Hobbema; sex, mastery, family role strain, and life events in Kehewin; and mastery, family role strain, social support, and economic strain in Sarcee. It is also quite possible that reported self-esteem scores understate the true extent to which respondents in our samples felt positively about themselves. Or it could mean that self-esteem is not a culturally relevant mediator of stress in these samples. While the positive effects of self-esteem were clearly operative in these communities, there appears to have been a number of other factors impinging on its beneficial effects.

Mastery was shown to impact negatively on depression levels in this study. Its effect was sizable in all but two of the samples. Other factors contributing to the stress process may inhibit a stronger beneficial effect of an increase sense of control. Very strong zero-order correlations were observed for all communities. The partial effect of mastery was reduced quite substantially, however, in the communities of Alexander and Sarcee. Contributing to this reduction was the addition of social support,

family role strain, and chronic illnesses in the Alexander equation, and the addition of family role strain in the Sarcee equation. From a theoretical perspective, it makes intuitive sense that an increase in both self-esteem and mastery, especially in Native communities, would have a beneficial effect on depression. Clearly, these personal resources are important in our understanding of the stress process.

It evident from the above discussion that some of the independent variables are highly correlated with each other. Self-esteem and mastery, and life events and family role strain, were typically observed to be highly related in all of the samples. To control, as it were, for the multicollinearity of independent variables, reduced form regression equations were performed. Table VIII shows the reduced form equations for each of the reserves. What these results illustrate is that a number of independent variables have a similar effect for all reserves, while others have a unique effect. What is also apparent from these results is that the high R^2s observed in the previous regressions, are really the result of just a few of the independent variables.

Looking at Alexander, it can be seen that chronic illnesses, family role strain, social support, and

mastery are the most important predictors of depression, accounting for 43 percent of its variance. Similarly, life events, economic strain, social support, self-esteem, and mastery account for 42 percent of the variance in depression in Hobbema; life events, family role strain, mastery, and sex, account for 48 percent of the variance in depression in Kehewin; and economic strain, family role strain, social support, and mastery account for 34 percent of the variance in depression in Sarcee. Although the statistical results obtained in the Alexis sample must be considered unreliable, it was observed that life events and mastery account for 22 percent of the variation in depression.

Mastery was an important predictor for depression in all reserves. None of the other independent variables were common to all reserves. Life events were common to Alexis, Hobbema, and Kehewin; family role strain was common to Alexander, Kehewin, and Sarcee; social support was common to Alexander, Hobbema, and Sarcee; and economic strain was common only to Hobbema and Sarcee. Chronic illnesses was unique to Alexander; self-esteem was unique to Hobbema; and sex was unique to Kehewin.

The results observed in the reduced form equations

illustrate most cogently how mastery, especially, affects depressive symptomatology in these Indian bands. It needs to be reiterated that one of the most important conditions all reserve Indians share is their dependent status. Clearly, a sense of control over one's life has been shown in this study to greatly reduce the negative effects of stressors. While the predictive power for mastery is similar for each of these reserves, the predictive power of other variables is quite often unique to a reserve.

Perhaps the most important finding in this study was the fact that an extremely large number of individuals in each sample reported experiencing clinically relevant depressive symptoms. To find that over fifty percent of these samples suffer such high levels of depression demands more research attention.

Although we were only able to look at one outcome of the stress process in this study, an investigation into multiple outcomes is highly desirable. It has been suggested, for example, that gender differences in vulnerability to stressful events disappear when multiple as opposed to single outcomes are taken into account (Pearlin 1989; Lennon 1987). Moreover, type of event and subsequent distress has also been found to be gender related (Thoits 1987). Since alcohol and

drug abuse is a problem in Native communities, it is most important that these outcomes also be investigated.

The reserve samples in this analysis suffered higher levels of stress than would be expected in a general population sample, and this was most evident in the levels of depression experienced by all bands. The causes of this situation are difficult to discover or explain. Perhaps part of the explanation lies in the cultural and historical backgrounds of these populations.

Culture provides the means by which an individual can learn to cope or deal with the stressors he or she encounters. According to Mechanic (1962:220):

> An adequate culture and tradition teach the young how to deal with environmental exigencies, and an adequate person learns effectively to do this. The magnitude of stress is dependent upon the extent of imbalance between the group's environment and the patterns available for dealing with the environment. When imbalances occur between environmental problems and cultural and social resources, we have what we might call 'stress situations' inherent within the cultural and social systems.

It is through the various social institutions of any culture that a member learns and internalizes the norms, values, and beliefs of his or her culture. Individuals who identify strongly with their social institutions can benefit, in terms of their general

well-being, from that identification.

Strong identification with the communication networks of a given society, according to Moss (1973:155), acts to,

> reduce perceived incongruities and their accompanying uncertainty and thus benefit the health of a person by minimizing arousal of the general physiological responses in sufficient intensity or duration to produce changes in susceptibility to illness. Even a communication network containing inadequate information can be effective if its information is sufficiently accurate to permit ... survival.

One of the most crucial aspects in the protection of the health of cultural members is not in a society's level of technology nor its degree of social sophistication, but rather, whether the society is relatively stable (Totman 1979:126).

It is the socially involved individual living in a stable society who is the most resistant to illness. The cultural values of a supportive community protect against stress by strengthening social and family cohesion thereby enabling the individual to cope better, and more effectively, with the vicissitudes of life. Community membership gives meaning and coherence to daily life and reduces the stress of uncertainty (Helman 1984:172). The importance of culture in preparing and protecting members in the face of new and unfamiliar situations has been

documented, for example, in a study on the distribution of blood pressure and coronary heart disease (Levine and Scotch 1970:197).

The North American Indians' initial contact with the Europeans resulted in massive social disruption. But because contact was sustained, and culturally significant adaptation to new environmental conditions was ostensibly prevented (by various means such as displacement, settlement on reserve lands, the placement of children into residential schools, etc.), personal and cultural disruption was inevitable.

Because for the past one hundred years Indian lives have been largely controlled by the Department of Indian Affairs (in its various guises), culturally significant adaptation has been more or less thwarted. Instead, reserve Indians have put up with or endured the external control by government bureaucrats. The strain of putting up with the dictates of Indian Affairs has had a tremendous cost on the psychological well-being of Indian people. In response to this strain Indian people have accelerated a revitalization process. Some Indian populations have begun to regain control over some of the important aspects of their lives. Most have regained control over the education of their children and many

have regained control over their welfare, policing, and justice systems. It is not known whether the state of psychological distress observed in the communities in this study is better or worse than it has been. What is clear, however, is that depressive symptomatology is very high amongst these reserves. We can only speculate, based on the results of this study, that an increase in control may help to reduce the stressfulness of Native life. Self-determination, therefore, may be an important factor in the health protection of Indian peoples.

VII. CONCLUSION

Overall, the Pearlin, et. al. (1981) stress model worked as predicted for the five Indian bands. Variables in the equation behaved as predicted with very few exceptions. The model also obtained comparable R^2 s to other multivariable stress regression equations, with the exception, perhaps, of the Alexis regression. The unreliability of the Alexis results is most likely due to the small sample size and low response rate.

Results of the regression equations for each community showed that the size of effect of some variables, such as sex, economic strain, family role

strain, social support, self-esteem, and mastery, differed between reserves. Other variables, such as education, life events, and chronic illnesses, had similar effects. It is unclear, given the limitations of the data, and the limited knowledge we have of these five bands, why such differences occur. It is clear, however, that there are social, cultural, economic, and political differences between these bands that influence what stressors and resources have the greatest effect on depression. It is also clear that a sense of control is an important factor in helping to reduce current levels of depressive symptomatology.

This study is the first of its kind to attempt to analyze the stress experience of Native individuals. It is also the first of its kind to assess the level of psychological well-being in any Indian population. The results of this analysis are particularly disturbing given the much higher than expected levels of depression. This is especially apparent given the large discrepancy in depression levels observed not only in general population samples, but a disabled sample as well. Clearly, Native populations experience extreme chronic disabilities in addition to their extreme socio-economic and political

conditions. By virtue of this finding alone, future research into the stress-distress relationship is a necessity.

The Pearlin, et. al. (1981) stress model has proven to be a useful tool in our evaluation of the Native stress process. It is suggested, however, that future research into the Native stress experience employ more refined measures of life events, economic strain, family role strain, self-esteem, and social support. Future instruments must be sensitive to the cultural diversity and uniqueness of Native populations.

Although Native people share some social structural conditions vis-a-vis the Euro-Canadian dominant society, they react to their stressful existence in differing ways. It would seem from this analysis that the various systems of stratification based on race, ethnicity, and socio-economic class are likely the sources of their stressful life conditions. Until these structurally imposed conditions change, it cannot be expected that their psychological well-being will improve.

VIII. NOTES

1. Population figures for all reserves are based on 1990 figures obtained from Indian and Northern Affairs Canada.

2. Economic and social data were obtained from the Alberta Government, Indian Affairs' 1986 publication, A Guide to Native Communities in Alberta.

3. Information on current student enrolment was obtained from conversations with Wayne Hanna, Communications Manager, Department of Indian and Northern Affairs, Edmonton, Alberta on September 17th, 1991. All the reserves in this study have control over the education of their members. That is, the schools located on the reserve are strictly operated by the band. The band hires the teachers and sets the financial priorities. Decisions on how money is spent in the school is determined by the Chief in consultation with members of the band council. All reserve schools in this study have adopted the provincial curriculum, however, the Cree language is also taught in addition to Provincially determined core subjects. Generally, Indian control over education is limited to on-reserve schools. The Alexis band, however, does have a tuition agreement with the off-reserve schools attended by band members. This agreement allows the Alexis band council to partake in the decision-making process with respect to the hiring of teachers and the allocation of school funds in the respective schools its students are attending.

4. The Edmonton Area survey was conducted in 1983. This edition is used as a reference in this paper because it contains additional comparative information that is not available in subsequent Edmonton area studies.

TABLE I

MEANS AND STANDARD DEVIATIONS OF DEMOGRAPHIC VARIABLES BY RESERVE

	RESERVE				
	Alexander	Alexis	Hobbema	Kehewin	Sarcee
N	96	58	236	108	103
Variables:					
Sex	.43	.40	.33	.60	.43
S.D.	(.50)	(.49)	(.47)	(.49)	(.50)
Marital Status	.47	.62	.59	.59	.68
S.D.	(.50)	(.50)	(.49)	(.49)	(.47)
Education	9.41	7.94	9.00	8.98	10.55
S.D.	(3.51)	(3.44)	(3.45)	(3.05)	(3.46)

Notes:
Sex - male coded 1, female coded 0
S.D. - Standard Deviation
Marital Status - Married or Common-law coded 1, single, widowed, divorced or separated code 0

TABLE II

FREQUENCIES, MEANS, AND STANDARD DEVIATIONS OF STRESSOR VARIABLES BY RESERVE

	RESERVE				
	Alexander	Alexis	Hobbema	Kehewin	Sarcee
Variables:					
Life Events	%	%	%	%	%
0	30 (31.3)	17 (29.3)	110 (46.6)	25 (23.1)	0 (0)
1	32 (33.3)	15 (25.9)	62 (26.3)	22 (20.4)	5 (4.9)
2	17 (17.7)	11 (19.0)	26 (11.0)	17 (15.7)	12 (11.7)
3	4 (4.2)	10 (17.2)	16 (6.8)	22 (20.4)	6 (4.8)
4	7 (7.3)	3 (5.2)	13 (5.5)	13 (12.0)	7 (6.8)
5	3 (3.1)	1 (1.7)	5 (2.1)	6 (5.6)	29 (28.2)
6	3 (3.1)	1 (1.7)	2 (0.8)	2 (1.9)	19 (18.4)
7	0 (0)	0 (0)	2 (0.8)	0 (0)	7 (6.8)
8	0 (0)	0 (0)	0 (0)	1 (0.9)	8 (7.8)
9	0 (0)	0 (0)	0 (0)	0 (0)	6 (5.8)
10	0 (0)	0 (0)	0 (0)	0 (0)	2 (1.9)
11	0 (0)	0 (0)	0 (0)	0 (0)	1 (1.0)
12	0 (0)	0 (0)	0 (0)	0 (0)	1 (1.0)
Mean	1.45	1.56	1.12	2.07	5.28
S.D.	(1.56)	(1.44)	(1.48)	(1.72)	(2.35)
N	96	58	236	108	103
Economic Strain					
Low	41 (45.0)	22 (40.0)	123 (55.0)	27 (25.0)	39 (39.8)
Moderate	40 (44.0)	21 (38.2)	75 (33.5)	46 (42.6)	50 (51.0)
High	9 (9.9)	10 (18.2)	23 (10.3)	30 (27.8)	9 (9.2)
Very High	1 (1.1)	2 (3.6)	3 (1.3)	5 (4.6)	0 (0)
Mean	2.54	2.89	2.32	3.38	2.57
S.D.	(1.29)	(1.55)	(1.32)	(1.48)	(1.19)
N	91	55	224	108	98
Chronic Illnesses					
0	22 (22.9)	22 (37.9)	72 (30.5)	56 (51.9)	19 (18.4)
1	20 (20.8)	10 (17.2)	50 (21.2)	22 (20.4)	29 (28.2)
2	16 (16.7)	13 (22.4)	37 (15.7)	15 (13.9)	28 (27.2)
3	11 (11.5)	2 (3.4)	35 (14.8)	2 (1.9)	9 (8.7)
4	11 (11.5)	2 (3.4)	10 (4.2)	3 (2.8)	2 (1.9)
5	8 (8.3)	2 (3.4)	10 (4.2)	5 (4.6)	6 (5.8)
6	3 (3.1)	4 (6.9)	10 (4.2)	3 (2.8)	5 (4.9)
7	1 (1.0)	2 (3.4)	4 (1.7)	1 (0.9)	2 (1.9)
8	1 (1.0)	0 (0)	1 (0.4)	0 (0)	1 (1.0)
9	1 (1.0)	0 (0)	1 (0.4)	0 (0)	1 (1.0)
10	1 (1.0)	1 (1.7)	3 (1.3)	1 (0.9)	0 (0)
11	0 (0)	0 (0)	2 (0.8)	0 (0)	1 (1.0)
12	1 (1.0)	0 (0)	1 (0.4)	0 (0)	0 (0)
13	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
14	1 (1.0)	0 (0)	0 (0)	0 (0)	0 (0)
Mean	2.49	1.56	1.12	1.20	2.16
S.D.	(2.60)	(1.44)	(1.48)	(1.87)	(2.15)
N	96	58	236	108	103
Family Role Strain					
Low	63 (65.6)	41 (70.7)	136 (57.6)	78 (72.2)	65 (63.1)
Moderate	19 (19.8)	10 (17.2)	43 (18.2)	15 (13.9)	23 (22.3)
High	13 (13.5)	7 (12.1)	55 (23.4)	12 (11.1)	14 (13.6)
Very High	1 (1.0)	0 (0)	2 (0.8)	3 (2.8)	1 (1.0)
Mean	1.09	.86	1.43	1.10	1.15
S.D.	(1.23)	(1.19)	(1.29)	(1.34)	(1.19)
N	96	58	236	108	103

TABLE III

FREQUENCIES, MEANS, AND STANDARD DEVIATIONS OF SOCIAL AND PSYCHOLOGICAL RESOURCES BY RESERVE

	RESERVE				
	Alexander	Alexis	Hobbema	Kehewin	Sarcee
Variables:					
Social Support					
	%	%	%	%	%
Low	0 (0)	0 (0)	2 (0.8)	0 (0)	0 (0)
Moderate	6 (6.4)	11 (20.4)	28 (12.3)	15 (14.2)	11 (10.9)
High	57 (60.6)	32 (59.2)	144 (63.2)	74 (69.8)	61 (60.4)
Very High	31 (33.0)	11 (20.4)	54 (23.7)	17 (16.0)	29 (28.7)
Mean	5.55	5.06	5.18	5.04	5.48
S.D.	(0.88)	(1.09)	(0.99)	(0.95)	(0.94)
N	94	54	228	106	101
Self-Esteem					
Low	0 (0)	0 (0)	3 (1.4)	0 (0)	3 (3.0)
Moderate	3 (3.3)	1 (1.2)	13 (6.0)	6 (5.6)	3 (3.0)
High	26 (28.3)	16 (29.6)	114 (52.5)	59 (55.1)	26 (26.0)
Very High	63 (68.4)	37 (68.5)	87 (40.1)	42 (39.3)	68 (68.0)
Mean	6.37	6.29	5.75	5.82	6.04
S.D.	(0.85)	(0.89)	(1.08)	(0.87)	(1.12)
N	92	54	217	107	100
Mastery					
Low	0 (0)	1 (1.8)	2 (0.9)	0 (0)	0 (0)
Moderate	19 (20.4)	9 (16.4)	59 (27.3)	27 (25.0)	16 (16.2)
High	48 (51.6	32 (58.2)	120 (55.6)	63 (58.3)	60 (60.6)
Very High	26 (28.0)	13 (23.6)	35 (16.2)	18 (16.7)	23 (23.2)
Mean	5.18	5.14	4.74	4.94	5.19
S.D.	(1.20)	(1.08)	(1.16)	(1.08)	(1.08)
N	93	55	216	108	99

Notes: All variables are scored as: low - less than or equal to two
moderate - greater than two less than or equal to four
high - greater than four less than or equal to six
very high - greater than six less than or equal to seven

TABLE IV

FREQUENCIES, MEANS, AND STANDARD DEVIATIONS OF DEPRESSION BY RESERVE

	RESERVE				
	Alexander	Alexis	Hobbema	Kehewin	Sarcee
Depression					
	%	%	%	%	%
Low	12 (12.9)	12 (12.1)	32 (14.6)	5 (4.6)	14 (13.9)
Moderate	13 (14.0)	10 (17.5)	23 (10.5)	15 (13.9)	20 (19.8)
High	19 (20.4)	7 (12.3)	46 (21.0)	18 (16.7)	13 (12.9)
Very High	44 (47.3)	28 (35.1)	71 (32.4)	43 (39.8)	47 (46.5)
Extreme	5 (5.4)	8 (14.0)	47 (21.5)	27 (25.0)	7 (6.9)
Mean	1.16	1.16	1.36	1.52	1.15
S.D.	(0.51)	(0.73)	(0.80)	(0.85)	(0.57)
N	93	57	219	108	101
Percentage Scoring Greater than 1.08	52.7	49.1	53.9	64.8	53.5

Note: Depression Scores - Low - greater than zero less than or equal to .5
Moderate - greater than .5 less than or equal to .8
High - greater than .8 less than or equal to 1.08
Very High - greater than 1.08 less than or equal to 2
Extreme - greater than 2 less than or equal to 4

TABLE V

CORRELATIONS OF DEPRESSION WITH INDEPENDENT VARIABLES BY RESERVE

	RESERVE				
	Alexander	Alexis	Hobbema	Kehewin	Sarcee
Variables:					
Sex	-.215*	-.327**	.085	-.526***	-.211*
Marital Status	-.148	-.030	-.198**	-.145	-.178*
Education	.039	-.068	-.196**	-.011	-.068
Life Events	.298**	.341**	.265***	.299**	-.036
Chronic Illness	.263**	.068	.069	.344***	.292**
Economic Strain	.078	.202	.436***	.335***	.321**
Family Role Strain	.341***	.340**	.316***	.487***	.284**
Social Support	-.486***	-.171	-.421***	-.205*	-.336***
Self-Esteem	-.289**	-.185	-.421***	-.337***	-.302**
Mastery	-.422***	-.306*	-.500***	-.539***	-.408***

Note:

* P less than .05
** P less than .01
*** P less than .001

Sex male coded 1, female coded 0
Marital Status coded 1 for married and living common-law, else is coded 0

TABLE VI

REGRESSION OF DEPRESSION ON STRESSORS BY RESERVE

	RESERVE				
	Alexander	Alexis	Hobbema	Kehewin	Sarcee
Variables:					
Life Events					
(b)	.050	.129	.050	.052	.002
(SEb)	.037	.070	.037	.045	.022
(B)	.154	.256	.092	.106	.008
Family Role Strain					
(b)	.113*	.142	.102*	.268***	.155***
(SEb)	.044	.088	.043	.051	.043
(B)	.274	.233	.162	.423	.321
Economic Strain					
(b)	-.010	.022	.216***	.099	.146**
(SEb)	.041	.066	.040	.052	.044
(B)	-.025	.047	.356	.172	.301
Chronic Illness					
(b)	.043*	.032	-.002	.089*	.074*
(SEb)	.020	.041	.021	.038	.024
(B)	.221	.102	-.005	.196	.274
R^2	.196	.183	.230	.360	.268
ADJ. R^2	.158	.118	.216	.336	.236
Constant	.898***	.709**	.663***	.674***	.440*

Note:
(b) Unstandardized slope
(SEb) Standard Error of the Unstandardized Slope
(B) Standardized Slope

* P less than .05
** P less than .01
*** P less than .001

TABLE VII

REGRESSION OF DEPRESSION ON STRESSORS, RESOURCES, SEX MARITAL STATUS, AND EDUCATION BY RESERVE

	RESERVE				
	Alexander	Alexis	Hobbema	Kehewin	Sarcee
Variables:					
Sex					
(b)	-.115	-.241	.131	-.525**	-.140
(SEb)	.097	.252	.093	.156	.105
(B)	-.112	-.163	.077	-.304	-.121
Marital Status					
(b)	-.114	-.130	-.176	-.265	-.105
(SEb)	.098	.233	.092	.140	.113
(B)	-.112	-.088	-.108	-.154	-.086
Education					
(b)	.033*	-.018	-.016	-.019	.004
(SEb)	.016	.038	.014	.022	.016
(B)	.226	-.083	-.068	-.069	.025
Life Events					
(b)	.007	.150	.050	.080	.005
(SEb)	.035	.084	.033	.042	.023
(B)	.023	.297	.093	.162	.021
Economic Strain					
(b)	-.080	-.018	.112**	-.003	.087
(SEb)	.041	.082	.038	.055	.046
(B)	-.204	-.307	.184	-.005	.180
Family Role Strain					
(b)	.088*	.132	.082*	.179	.150***
(SEb)	.043	.105	.040	.058	.043
(B)	.211	.216	.131	.281	.311
Chronic Illness					
(b)	.060**	.000	.001	.045	.045
(SEb)	.019	.050	.019	.037	.026
(B)	.306	.000	.002	.099	.168
Social Support					
(b)	-.250***	-.062	-.117*	.027	-.070
(SEb)	.062	.114	.050	.077	.067
(B)	-.428	-.093	-.144	.030	-.114
Self-Esteem					
(b)	-.045	.047	-.149**	.090	-.079
(SEb)	.059	.155	.045	.093	.052
(B)	-.076	.057	-.120	.092	-.155
Mastery					
(b)	-.082	-.122	-.168***	-.219**	-.099
(SEb)	.045	.144	.044	.079	.056
(B)	-.191	-.181	-.243	-.277	-.187
R^2	.504	.289	.454	.510	.395
Adj. R^2	.427	.080	.426	.457	.320
Constant	3.019***	1.825	3.390***	2.178**	2.108***

Note:

(b) Unstandardized Slope
(SEb) Standard Error of the Unstandardized Slope
(B) Standardized Slope

*P less than .05
**P less than .01
***P less than .001

TABLE VIII

REDUCED FORM EQUATIONS BY RESERVE

	RESERVE				
	Alexander	Alexis	Hobbema	Kehewin	Sarcee
Variables	b	b	b	b	b
Life events	-	.178*	.071*	.087*	-
Chronic Illness	.045*	-	-	-	-
Economic Strain	-	-	.137***	-	.095*
Family Role Strain	.116**	-	-	.129*	.154***
Social Support	-.211***	-	-.120*	-	-.141*
Self-Esteem	-	-	-.148**	-	-
Mastery	-.096*	-.214*	-.200***	-.217**	-.135*
Sex	-	-	-	-.572***	-
R^2	.426	.218	.424	.477	.335
Adj. R^2	.394	.180	.409	.457	.304
Constant	2.607	1.983	3.385	2.613	2.222

Note:

b Unstandardized Slope
* P less than .05
** P less than .01
*** P less than .001

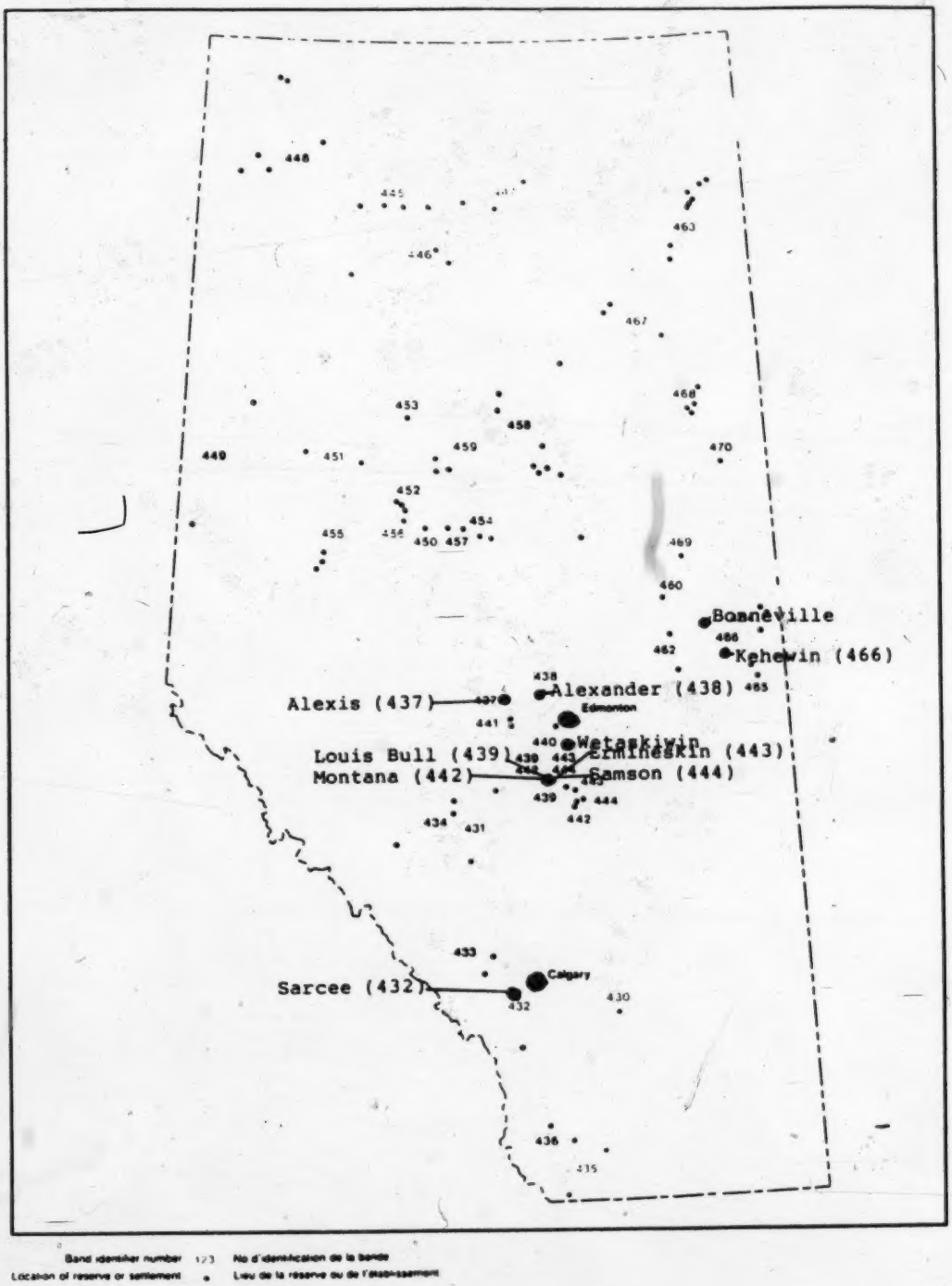

Figure 1. Indian Bands - Alberta region (Source: Indian and Northern Affairs Canada).

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X. APPENDICES

1. Items in the life events scale include: serious accident or injury, serious illness, separation or divorce, continuous financial worries, major financial crisis, trouble with the law, pregnancy, abortion or miscarriage, child died, spouse died, close family member died, close friend died, broke a close relationship, ended an engagement, separated from someone close, moved, and went on welfare.

2. The following chronic illness items were included: (Items marked with an asterisk were adopted from the Canada Health Survey Questionnaire (1978)) anemia*, skin allergies*, hay fever or other allergies (rashes, eczema)*, asthma*, arthritis or rheumatism*, cancer*, diabetes*, emphysema or chronic bronchitis*, serious problem with breathing (lungs), any emotional disorders (depression)*, alcoholism,\ epilepsy*, high blood pressure*, heart disease*, kidney disease*, stomach ulcer*, thyroid trouble or goitre*, recurring migraine headaches*, missing limbs*, paralysis of any kind*, serious hearing problem (ear), serious problems with vision, serious problems with your teeth, mouth or gums, bladder infections, gastro-intestinal infections or bowel problems, stroke, recurring memory loss, serious trouble with back or spine*, serious trouble with legs or hips*, serious trouble with the arms or shoulders*, serious trouble with any other bones or joints*, any other health problems.

3. Respondents were asked, "when you think of your financial situation overall, how difficult would you say it is to meet each of the following commitments? Would you say that housing tends to be very difficult, somewhat difficult, or not at all difficult?" Items in the list include: housing, food, personal expenses, transportation, clothing, and monthly bills.

4. Respondents were asked, "Now, I'd like to ask about some things that happened to <u>you</u> personally. Please tell me which of the following experiences you <u>have had in the past 12 months.</u>" The responses were coded yes or no to the

following questions: were there increasing serious arguments with your spouse or other household member; were there serious problems in your relationship with a close friend, relative or neighbour not living in your home; was the behaviour of your spouse a problem for you; was the behaviour of one of your children a problem for you.

5. The perceived social support variable consisted of the following. Respondents were asked, "We would like to know your thoughts and feelings about yourself and the people who matter to you. For each of the statements that I am going to read, please indicate how strongly you agree or disagree with the statement as it applies to you."

   a. If I needed to get away for awhile, someone would give me a place to stay.

   b. It's pretty hard to borrow a few dollars.

   c. I can always count on some of my friends for help and support.

   d. Sometimes there is nobody who I can lean on and talk to about very personal problems.

   e. If I need help, I know that someone will be there.

   f. I can always count on some of my relatives for help and support.

   g. There is always somebody I can just hang around with.

   h. The people I live with are <u>not</u> always very supportive.

   i. If I had to be away overnight, it would be easy to get someone to look after a family member.

   j. There are always people that I can just drop in on.

   k. If I was sick, I know that there would always be someone who would take care of me.

l. I often have to do things myself because people aren't willing to pitch in and help.

m. No matter what happens, I know that I can always count on someone's support.

6. The original six self-esteem items were as follows. Respondents were asked, "For each of the following statements I am going to read to you, please use this scale to tell me how strongly you agree or disagree with each statement."

a. I feel that I have a number of good qualities.

b. I feel that I'm a person of worth at least equal to others.

c. I am able to do things as well as most other people.

d. I take a positive attitude toward myself.

e. On the whole I am satisfied with myself.

f. All in all, I'm inclined to feel that I'm a failure.

7. The mastery scale consists of the following items. Respondents were asked, "For each of the following statements I am going to read to you, please use this scale to tell me how strongly you agree or disagree with each statement.

a. I have little control over the things that happen to me.

b. There is really no way I can solve some of the problems that I have.

c. There is little I can do to change many of the important things in my life.

d. I often feel helpless in dealing with problems of life.

e. Sometimes I feel that I am being pushed around in life.

f. What happens to me in the future mostly

depends on me.

g. I can do just about anything I really set my mind to.

8. The CES-D items used in this analysis are as follows. Respondents were asked, "Now, I'm going to read you some sentences that say something about how people sometimes feel. Please listen to each sentence and tell me the answer that best indicates how often you have felt this way in the past 7 days." During the past seven days:

a. I was bothered by things that usually don't bother me.

b. I did not feel like eating; my appetite was poor.

c. I felt that I could not shake off the blues even with help from my family or friends.

d. I felt that I was just as good as other people.

e. I had trouble keeping my mind on what I was doing.

f. I felt depressed.

g. I felt that everything I did was an effort.

h. I felt hopeful about the future.

i. I thought my life had been a failure.

j. I felt fearful.

k. My sleep was restless.

l. I was happy.

m. I talked less than usual.

n. I felt lonely.

o. People were unfriendly.

p. I enjoyed life.

q. I had crying spells.

r. I felt sad.

s. I felt that people disliked me.

t. I could not get going.